#### **INTRODUCTION**

Mathematics is an indispensable tool in the world. The knowledge and application of mathematics in everyday activities provide the critical core skills of computation, translating problems into mathematical language, application of mathematical concepts and being able to find solutions.

The General objectives for Grades 10 – 12 Mathematics:

- 1. Acquire the necessary skills that allow learners to become problem solvers and informed decision makers.
- 2. Make connections between Mathematics and the Global World.
- 3. Bring Mathematics to life with many real-life applications.
- 4. Become successful in the study of Algebra II, Geometry, Trigonometry and Pre-calculus.

A learner-centered approach is emphasized in this curriculum. This is based on the firm belief that learning becomes more permanent, meaningful and exciting when learners themselves take ownership of the learning process. Instructors are therefore urged to contrive those classroom strategies that engage learners actively in the teaching and learning process.

# GRADE: 10

# PERIOD I

# TOPICS: SETS AND OPERATIONS ON SETS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
Learners are	Upon completion of this	<b>1.</b> Definition of set	Inclusive and Differentiated	Primary Text	EXPECTED COMPETENCIES
able to apply their concepts	topic, learners will:	using set notation	activities Individual seat work or work	Mathematics for Senior High School (Book 1,	Effective Communication
and skills on sets operations	1. Define and identify set using set notation	2. Definitions of types of sets	to abilities, gender and	(Pearson)	• Analytical Skills,
on sets and	<b>2.</b> Define and discuss the	(infinite set, finite set Universal set	learning styles.	Links:	• Digital Skills,
solve set related problems	types of sets ( infinite set, finite set, Universal	equal sets, equivalent sets)	1. Assist learners to define set using set notation	www.khanacademy.com	• Research and Problem Solving skills
problems.	set, equal sets, equivalent sets)	<b>3.</b> Subsets	<b>2.</b> Guide learners infinite set finite set Universal	www.mathway.com	• Organizational ability
	<ul> <li>3. Define , discuss and illustrate subsets</li> <li>4. Discuss the Venn Diagrams</li> </ul>	4. Venn Diagrams	set, equal sets, equivalent sets and	www.m.quickmath.com	Creativity & Innovation skills
		5. Venn diagram to	<ul> <li>3. Assist learners to form subsets and determine hasis smatter</li> </ul>	www.chegg.com	Can be used to check competences.
		intersection of sets		www.symbolab.com	Select relevant options:
	5. Use the Venn diagram	<b>6.</b> Venn diagrams to	basic equation for subsets.	.1	• Attendances
	to illustrate	illustrate Union of	Guide learners to draw the	www.cymath.com	• Oral questions and Answers
	intersection of sets	sets	Venn Diagram and illustrate		Class Assignment and
			<b>1.</b> intersection of sets		Participation
	<b>6.</b> Use the Venn	7. Venn diagram to	<b>2.</b> Union of sets		Observation
	diagrams to illustrate	show disjoint sets	<b>3.</b> disjoint sets and		Assignments
	Union of sets	and complement of	complement of a set		• Research
	7. Use the Venn diagram	a set.	4. Guide learners to use		• Quiz
	to show disjoint sets	8. Properties of sets	Venn diagram to solve		• Test

<ul><li>and complement of a set.</li><li>8. State and discuss the properties of sets</li></ul>	9. Venn diagrams to solve two-set and three-set problems	two- set and three set problem	• -Exams
<ul><li>9. Use the Venn diagrams to solve two-set and three-set problems</li></ul>	3		

# GRADE:10PERIOD:1UNIT IIITOPIC:RATIONAL NUMBERS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
				RESOURCES	ASSESSMENT
Learners are able	Upon completion of	<b>Rational Number</b>	<b>Inclusive and Differentiated</b>	<u>Primary Text</u>	EXPECTED COMPETENCIES
to apply the	this topic, learners	Addition and	<u>activities</u>	Mathematics for Senior	Effective Communication
concept of rational numbers to add	will: 1. Identify and	Subtraction of rational numbers	Individual seat work or work in mixed groups, according	High School (Book 1, 3) (Pearson)	• Analytical Skills,
rational numbers,	discuss rational	• Multiplication of	to abilities, gender and learning styles.	Links:	• Digital Skills,
multiply rational numbers, employ	2. Solve addition	rational numbers	Guide learners to :	www.khanacademy.com	Research and Problem Solving skills
the properties of multiplication on	and subtraction	Properties of     multiplication of	Identify and discuss:	www.mathway.com	Organizational ability
rational numbers and solve	3. Solve	rational numbers	a. rational Number	www.chegg.com	• Creativity & Innovation skills
problems involving real	multiplication of	• Division of rational numbers	Solve:	www.symbolab.com	ASSESSMENT STRATEGIES: Can be used to check competences.
numbers and their	4 State and use the	Decimal	rational numbers	www.cymath.com	Select relevant options:
number line	properties of	representation	Solve Multiplication of		Attendances
diagrams.	multiplication of	representation	a. Multiplication of		• Oral questions and Answers
	rational numbers	• Real numbers	Tational		Class Assignment and
			State and use:		Participation
	5. Solve Decimal	• The real number			Observation
	representation	line	<b>a.</b> the properties of		Assignments
	6 Dofino Pool	Duranting for 1	multiplication of		• Research
	0. Define Real	• Properties of real	rational numbers		• Ouiz
	illustrate it on	numbers			Test
	the real number	Approximation			• Exams
	line				

<ul> <li>7. Identify the Properties of real numbers</li> <li>8. Discuss Approximation</li> <li>9. Demonstrate Standard Form Tate Bina</li> </ul>	<ul> <li>Standard Form</li> <li>Binary Operation</li> </ul>	<ul> <li>Demonstrate: the Division of rational numbers</li> <li>Solve: <ul> <li>a. Decimal representation</li> </ul> </li> <li>Define; A Real numbers and illustrate it on the real number line</li> <li>Identify: The Properties of real numbers</li> </ul> <li>Discuss: Approximation</li> <li>Demonstrate numbers in Standard Form</li> <li>State: Binary Operation</li>		
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**GRADE: 10** 

PERIOD 11

# TOPICS 1: ALGEBRAIC EXPRESSION

LEARNING OUTCOMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
LEARNING OUTCOMES Learners are able to apply the concepts to form algebraic statements, form algebraic expressions, evaluate algebraic expressions, determine relations between two algebraic	<ul> <li>OBJECTIVES</li> <li>Upon completion of this topic, learners will:</li> <li>1. Express Statements in algebraic expression</li> <li>2. Discuss Numerical Statement</li> <li>3. Form Algebraic Expressions</li> <li>4. Evaluate Algebraic Expressions</li> </ul>	CONTENT Algebraic Expression Algebraic Statements Numerical Statement Forming Algebraic Expression Evaluating Algebraic Expression Relations between two algebraic expression	ACTIVITIES Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Discuss and Analyze: a. Statements in algebraic expression b. Numerical Statement Form and Evaluate a. Algebraic Expression b. Relations between two	MATERIALS/ RESOURCES         Primary Text         Mathematics for Senior         High School (Book 1         (Pearson)         Links:         www.khanacademy.com         www.mathway.com         www.mathway.com         www.chegg.com         www.symbolab.com         www.cymath.com	COMPETENCES/ ASSESSMENTS EXPECTED COMPETENCES: • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation
<ul> <li>algebraic</li> <li>expressions:</li> <li>Expansion</li> <li>Algebraic fraction</li> <li>Factorization</li> <li>Product of two binomials</li> <li>Perfect squares</li> <li>Difference of two squares</li> </ul>	<ol> <li>Show Relations between two algebraic expressions</li> <li>Demonstrate Expansion of algebraic expressions</li> <li>Add and Subtract Algebraic fraction</li> <li>Discuss and solve problems on factorization</li> </ol>	<ul> <li>Expansion</li> <li>Algebraic fraction</li> <li>Factorization</li> <li>Product of two binomials</li> <li>Perfect square</li> <li>Difference of two</li> </ul>	<ul> <li>b. Relations between two algebraic expressions</li> <li>Demonstrate skills <ul> <li>a. Expansion algebraic expressions</li> <li>b. Add and Subtract Algebraic fraction</li> </ul> </li> <li>Define, Discuss and Solve <ul> <li>a. Factorization</li> <li>b. Product of two binomials</li> </ul> </li> </ul>	www.cymain.com	<ul> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENTS</li> <li><u>STRATEGIES:</u></li> <li>Can be used to check</li> <li>competences. Select</li> <li>relevant options:</li> <li>Attendances</li> <li>Oral questions and Answers</li> <li>Class Assignment and</li> </ul>
	<ol> <li>9. Product of two binomials</li> <li>10. Express Perfect square</li> </ol>	squares	<b>d.</b> Difference of two squares		<ul><li>Participation</li><li>Observation</li></ul>

Factoring	<b>11.</b> Show Difference of two	• Factorizing quadratic	Factorize:	Assignments	
quadratic	squares	expressions	<b>a.</b> quadratic expressions	• Research	
expressions	<b>12.</b> Factorize quadratic			• Quiz	
	expressions			• Test	
	1			• Exams	

LEARNING	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/	COMPETENCES
OUTCOMES				RESOURCES	/ASSESSMENTS
Learners are able to	Upon completion of this topic,	Algebraic Expression	<b>Inclusive and Differentiated</b>	<u>Primary Text</u>	EXPECTED
apply the concepts	learners will:	Algebraic Statements	<u>activities</u>	Mathematics for Senior	<b>COMPETENCES:</b>
to form algebraic			Individual seat work or work	High School (Book 1	
statements, form	<b>13.</b> Express Statements in	Numerical Statement	in mixed groups, according	(Pearson)	• Effective
algebraic	algebraic expression		to abilities, gender and	Links:	Communication
expressions, evaluate		• Forming Algebraic	learning styles.		Analytical Skills.
algebraic	<b>14.</b> Discuss Numerical Statement	Expression	Discuss and Analyze:	www.khanacademy.com	
expressions,		• Evaluating Algebraic	<b>c.</b> Statements in algebraic	www.mathway.com	<ul> <li>Digital Skills,</li> </ul>
determine relations	<b>15.</b> Form Algebraic Expressions	Expression Relations	expression	www.m.guickmath.com	Research and Problem
between two		between two	d. Numerical Statement	www.iii.quiekinatii.com	Solving skills
algebraic	<b>16.</b> Evaluate Algebraic	algebraic expression		www.chegg.com	0
expressions:	Expressions	ungeorate expression	Form and Evaluate	www.symbolab.com	• Organizational ability
• E	17 Show Delations between two	<ul> <li>Expansion</li> </ul>	a. Algebraic Expression	www.evmeth.com	• Creativity &
• Expansion	17. Show Relations between two	·	<b>b.</b> Relations between two	www.cymath.com	Innovation skills
• Algebraic fraction	argeoraic expressions	Algebraic fraction	algebraic expressions		
• Factorization	<b>18</b> . Demonstrate Expansion of		Demonstrate skills		ASSESSMENTS
• Product of two	algebraic expressions	• Factorization	a Expansion algebraic		STRATEGIES:
binomials		• Decident of two	expressions		Can be used to check
<ul> <li>Perfect squares</li> </ul>	<b>19.</b> Add and Subtract Algebraic	Product of two     hinomials	<b>b</b> Add and Subtract		competences. Select
• Difference of two	fraction	Unionnais	Algebraic fraction		relevant options:
squares		• Perfect square	rigeoraic fraction		Attendances
<ul> <li>Factoring</li> </ul>	<b>20.</b> Discuss and solve problems	Torreet square	Define, Discuss and Solve		<ul> <li>Oral questions and</li> </ul>
quadratic	on factorization	• Difference of two	a. Factorization		Answers
expressions		squares	<b>b.</b> Product of two binomials		• Class Assignment and
	<b>21.</b> Product of two binomials		c. Perfect square		Participation
	22 Express Perfect square	• Factorizing quadratic	<b>d.</b> Difference of two squares		Observation
	22. Express reflect square	expressions			Assignments
	<b>23.</b> Show Difference of two		Factorize:		Pasarch
	squares		<b>a.</b> quadratic expressions		
	- Juneo				• Quiz

24. Factorize quadratic		• -Test
expressions		• -Exams

# **GRADE:** <u>10</u>

PERIOD 11

#### **TOPIC 11: NUMBER BASE**

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
Learners are able to apply concepts and skills to solve problems on number base.	<ul> <li>Upon completion of this topic , learners will:</li> <li>1. Discuss the base ten system</li> <li>2. Convert base ten to other bases</li> <li>3. Add and Subtract in bases five and eight</li> <li>4. Multiply in bases</li> <li>5. Operate in other bases</li> <li>6. Convert from other bases to base ten</li> <li>7. Solve simple equations on bases.</li> </ul>	<ul> <li>Number Base</li> <li>The base ten system</li> <li>Convert to other bases</li> <li>Add and Subtract in bases five and eight</li> <li>Multiplication</li> <li>Operate in other bases</li> <li>Convert from other bases to base ten</li> <li>Simple base equations</li> </ul>	Inclusive and Differentiated activitiesIndividual seat work or work in mixed groups, according to abilities, gender and learning styles.Assist learners to :analyze and solve :problems on :a. the base ten systemConvert :a. from base ten to other basesadd, subtract and multiply:a. In bases five, eight and tenOperate: a. in other basesa. from other bases to base tenSolve: a. Simple base equations	A. Primary Text         Mathematics for Senior         High School (Book 1(Pearson)         B. Secondary Texts         AKI-OLA series         Core mathematics for senior secondary schools         Links:         www.khanacademy.com         www.mathway.com         www.chegg.com         www.cymath.com	<ul> <li>EXPECTED Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESMENTS</li> <li>STRATEGIES:</li> <li>Can be used to check competences. Select relevant options:</li> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> </ul>

		• -Research
		• -Quiz
		• -Test
		• -Exams

<b>GRADE:</b>	10
PERIOD	111
<b>TOPIC:</b>	PLANE GEOMETRY

LEARNING	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	<b>COMPETENCES</b> /
OUTCOMES				RESOURCES	ASSESSMENTS
LEARNING OUTCOMES Learners are able to draw and measure angles, calculate angles, identify angle properties of parallel lines, draw and name triangles, apply angle properties of triangles, solve right-triangle, apply Pythagorean triples, and solve problems on quadrilaterals	OBJECTIVES         Upon completion of this topic, learners will:         1. Draw and measure angles         2. Calculate angle         3. Discuss angle properties of parallel lines         4. Draw and name Triangles         5. Discuss angle properties of triangles         6. Discuss Right – angled triangles         7. Define and apply the Pythagoras theorem         8. Pythagoras triples         9. Determine the Square and square root         10. Discuss the property of the polygons         11. Describe and calculate the angels: <ul> <li>a. Parallelograms and trapezium</li> </ul>	CONTENTS Plane and geometry Measuring and drawing angle Calculating angle Angle properties of parallel lines Triangles Angle properties of triangles Right – angled triangles Pythagoras	ACTIVITIES Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Draw and measure: a. angle Calculate: a. angle Discuss : a. angle properties	MATERIALS/ RESOURCESPrimary TextMathematics for SeniorHigh School (Book 1 (Pearson)Links:www.khanacademy.comwww.mathway.comwww.mathway.comwww.neuickmath.comwww.chegg.comwww.symbolab.comwww.cymath.com	COMPETENCES/ ASSESSMENTS EXPECTED COMPETENCIES • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills ASSESSMENT STRATEGIES: Can be used to check competences. Select relevant options: • -Attendances • -Oral questions and Answers • -Class Assignment and
	<ul> <li>10. Discuss the property of the polygons</li> <li>11. Describe and calculate the angels: <ul> <li>a. Parallelograms and trapezium</li> <li>b. Kites</li> <li>c. Rhombuses</li> <li>d. Rectangles and squares</li> </ul> </li> </ul>	<ul> <li>angled triangles</li> <li>Pythagoras theorem</li> <li>Pythagorean triples</li> <li>Square and square root</li> <li>polygons</li> <li>Parallelogra ms and trapezium</li> <li>-Kites</li> <li>-Rhombuses</li> </ul>	Discuss : a. angle properties of parallel lines Draw and name: a. Triangles Discuss : a. angle properties of triangles b. Right – angled triangles	www.symbolab.com	<ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul>

Rectangles and	Define and apply:
squares	a. the Pythagoras
	theorem
	Determine :
	a. Square and
	square root
	Discuss :
	a. property of the
	polygons
	Describe and
	calculate the
	angels:
	a. Parallelograms
	and trapezium
	b. Kites
	c. Rhombuses
	d. Rectangles and
	squares

GRADE: Period: <u>10</u> 1V

# **TOPIC:LINEAR EQUATIONS AND INEQUALITIES**

LEARNING OUTCOMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
Learners are able to apply concepts and skills to discuss and solve related problems on linear equations, inequalities.	<ul> <li>upon the completion of this topic, learners will:</li> <li>1. Use Equality and equivalence concepts</li> <li>2. Find the solution set of a linear equations</li> <li>3. Solve word problems and equations</li> <li>4. Solving linear inequalities in one variable</li> <li>5. Graph of linear inequalities in one graph</li> <li>6. Use word problems on inequalities</li> </ul>	<ul> <li>Linear equations and inequalities</li> <li>Equality and equivalence</li> <li>Finding the solution set of a linear equation</li> <li>Word problem and equations</li> <li>Solving linear inequalities in one variable</li> <li>Graph of linear inequalities in one graph</li> <li>Word problem and inequalities</li> </ul>	<ul> <li>Inclusive and Differentiated activities</li> <li>Individual seat work or work in mixed groups, according to abilities, gender and learning styles.</li> <li>Assist learners to : Identify equality and equivalence</li> <li>Find the solution sets of linear equations</li> <li>Solve word problems and equations</li> <li>Solve linear inequalities in one variable</li> <li>Graph linear inequalities in one graph</li> <li>Solve word problems on linear inequalities</li> </ul>	Primary Text         Mathematics for         Senior         High School (Book         I(Pearson)         Links:         www.khanacademy.         com         www.mathway.com         www.mathway.com         www.chegg.com         www.symbolab.com         www.cymath.com	EXPECTED COMPETENCES:         • Effective Communication         • Analytical Skills,         • Digital Skills,         • Research and Problem Solving skills         • Organizational ability         • Creativity & Innovation skills         ASSESSMENT         STRATEGIES:         Can be used to check competences. Select relevant options:         • -Attendances         • -Oral questions and Answers         • Class Assignment and Participation         • Assignments         • Research         • Quiz         • Test         • Exams

# Semester TWO

**GRADE:** 

# <u>10</u> 1V PERIOD

#### **TOPIC: RELATIONS AND FUNCTIONS**

LEARNING OUTCOMES	OBJECTIVES	COENTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
Learners are able to apply concepts to solve problems on relations, functions, graph relations and functions and determine the gradient of straight lines and calculate distance between two points.	<ul> <li>upon the completion of this topic, learners will:</li> <li>1. Discuss Relations</li> <li>2. Distinguish between the various types of relations</li> <li>3. Identify Functions</li> <li>4. Change the subject of the relation</li> <li>5. Graph linear functions</li> <li>6. Find the Gradient of a straight line</li> <li>7. Calculate the distance between two points</li> <li>8. Graphs quadratic functions</li> </ul>	<ul> <li><u>Relations and Functions</u></li> <li>Relations</li> <li>Types of relations</li> <li>Functions</li> <li>Change of subject</li> <li>Graph of linear functions</li> <li>Gradient of a straight line</li> <li>Distance between two points</li> <li>Graphs of quadratic functions</li> </ul>	Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Assist learners to Discuss: a. Relations Distinguish a. between the various types of relations Identify a. Functions of relations Change the subject of the relation Graph a. linear functions Find: a. the Gradient of a straight line Calculate:	Primary Text Mathematics for Senior High School (Book 1(Pearson) Links: www.khanacademy.com www.mathway.com www.mathway.com www.chegg.com www.chegg.com www.symbolab.com www.cymath.com	<ul> <li>COMPETENCIES</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENT</li> <li>STRATEGIES:</li> <li>Can be used to check competences. Select relevant options:</li> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> </ul>

	a. the distance between	•	-Research
	two points	•	-Quiz
	Graphs:	•	-Test
	a. quadratic functions	•	-Exams

### **GRADE:** <u>10</u> V

PERIOD

#### SIMULTANEOUS LINEAR EQUATIONS **TOPIC:**

LEARNING	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
OUTCOMES				RESOURCES	ASSESSMENTS
Learners are	Upon the	Simultaneous linear	Inclusive and	Primary Text	<b>EXPECTED COMPETENCES:</b>
Learners are able to solve simultaneous linear equations using the methods of (i) graphs, (ii)elimination and (iii) substitution and	Upon the completion of this topic, learners will: 1. Solve simultaneous linear equations 2. Define and discuss Truth sets for	Simultaneous linear equations • Simultaneous linear equations • Truth sets for simultaneous linear relations • Use of graph • Elimination	Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Solve: a simultaneous	Primary Text Mathematics for Senior High School (Book 1 (Pearson) Links: www.khanacademy. com	<ul> <li>EXPECTED COMPETENCES:</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENT</li> <li>STRATEGIES:</li> </ul>
they are able to solve word problems under this topic.	simultaneous linear relations 3. Use of graph 4. Identify elimination 5. Discuss substitution 6. Solve more Word Problem in simultaneous linear equations	• Discuss substitution Word Problem in simultaneous linear equations	a. simultaneous linear equations <b>Define and discuss:</b> Truth sets for simultaneous linear Solve simultaneous equations by: a. elimination b. Substitution c. graph <b>Solve</b> : a. more Word Problems in simultaneous linear equations	<u>com</u> <u>www.mathway.com</u> <u>www.m.quickmath.</u> <u>com</u> <u>www.chegg.com</u> <u>www.symbolab.com</u> <u>www.cymath.com</u>	<ul> <li>Can be used to check competences. Select relevant options:</li> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul>

<b>GRADE:</b>	<u>10</u>				
PERIOD	V				
TOPIC	VECTO	R IN A PLANE	2		
LEARNING	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/ASSESSMENTS
OUTCOMES				RESOURCES	
Learners are able to apply concepts to identify the types of vector quantities,, determine the magnitude and direction of vector perform	upon the completion of this topic, learners will: 1. Discuss the Types of vector quantities 2. Distinguis	<ul> <li>Vector in a plane</li> <li>Types of vector quantities</li> <li>scalar and vector quantities</li> <li>Magnitude</li> </ul>	Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles.	Primary Text Mathematics for Senior High School (Book 1 (Pearson) Links: www.khanacademy.com	<ul> <li>EXPECTED COMPETENCES:</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENTS</li> </ul>
basic operations ( addition, subtraction and multiplication) on vectors	Distinguis h between scalar and vector quantities 3. Magnitude and direction of vector 4. Add and subtract vectors 5. Multiply the vector by a scalar	<ul> <li>Magnitude and direction of vector</li> <li>Addition and subtraction of vector</li> <li>scalar multiplication</li> </ul>	Guide learners to: Discuss: a. the Types of vector quantities Distinguish: a. between scalar and vector quantities Calculate: a. Magnitude and direction of vector Add and subtract : a. vector Multiply: a. vector by a scalar	www.mathway.com www.mathway.com www.m.quickmath.com www.chegg.com www.symbolab.com www.cymath.com	STRATEGIES:         Can be used to check competences. Select relevant options:         - Attendances         - Oral questions and Answers         - Class Assignment and Participation         - Observation         - Assignments         - Research         - Quiz         - Test         - Exams

Semester Two

# GRADE:10PERIODV1

UNIT I

TOPICS: R

**RIGID MOTION** 

LEARNING OUTCOMES	OBECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ASSESSMENTS
Learners are able to apply concepts to rigid motion by drawing its image using the methods of (i)translation , (ii) reflection and determine its symmetry	upon the completion of this topic, learners will: 1. Discuss and draw rigid motion 2. Draw and Translate images to other position 3. Identify and explain reflection of object in the mirror line 4. Construct symmetry object	Rigid Motion • Rigid motion • Translation • Reflection • Symmetry	Inclusive and Differentiated activitiesIndividual seat work or work in mixed groups, according to abilities, gender and learning styles.Discuss and draw: a. rigid motion Draw and Translate: a. images to other position Identify and explain: a. reflection of object in the mirror line Construct : a. symmetry object	Primary Text         Mathematics for Senior         High School (Book         I(Pearson)         Links:         www.khanacademy.com         www.mathway.com         www.mathway.com         www.chegg.com         www.symbolab.com         www.cymath.com	EXPECTED COMPETENCES• Effective Communication• Analytical Skills,• Digital Skills,• Research and Problem Solving skills• Organizational ability• Creativity & Innovation skillsASSESSNEBTSTRATEGIES:Can be used to check competences. Select relevant options:• -Attendances• -Oral questions and Answers• -Class Assignment and Participation• -Observation• -Assignments• -Research• Quiz• -Test• -Exams

<u>10</u> V1 **GRADE:** 

**PERIOD:** 

UNIT II

**TOPICS:** A. STATISTICS,

# **B, RATIO AND RATES**

#### C. PERCENTAGES

Learners are able to apply concepts of statistics, ratio, rates and percentages to solve problems on these topics.Upon the completion of these topics, learners will: 1. define and discuss1. Statistics 2. Ratio and Rates 3. PercentagesInclusive and Differentiated activitiesA. Primary Text Mathematics for SeniorEXPECTED3. discuss Graphical use the statistical approach to explain the effect of HIV and STIs on the population and solve problems3. discuss and define Averages3. discuss and define Averages1. Statistics 2. Ratio and Rates 3. Percentages1. Statistics 2. Ratio and Rates 3. Percentages1. Mathematics for SeniorCOMPETENCI SeniorStudent will use the HIV, STIs data and use the statistical approach to explain the effect of HIV and STIs on the population and solve problems3. discuss and define Averages• Frequency tables of central tendency (mode, median and plotA. Primary Text adiscussEXPECTED6. Define and analyze solve problems6. Define and analyze scales and scale drawing• Graphical displays • Graphical displays• Frequency table coment and natesIndividual seat work or work in mixed groups, according to abilities, gender and learning styles.A. Primary Text Mathematics for Senior• Effective Communication abilityUpon the completion of approach to explain the effect of HIV and STIs on the population and solve problems• Define and analyze scales and scale drawing• Graphical displays e. Ratio and rates• Completion data coment and rates• Creativity & Innovation ski	LEARNING OUTCOMES	ARNING OB ICOMES	SJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS
apply concepts of statistics, ratio, rates and percentages to solve problems on these topics.these topics, learners will: 1.2. Ratio and Rates 3. Percentages • Statisticsactivities Individual seat work or work in mixed groups, according to abilities, gender and learning styles.Mathematics for SeniorCOMPETENCIStudent will use the 	earners are able to	s are able to <b>Upon the</b>	e completion of	1. Statistics	Inclusive and Differentiated	A. Primary Text	EXPECTED
and percentages to solve problems on these topics.StatisticsIndividual seat work or work in mixed groups, according to abilities, gender and learning styles.SeniorStudent will use the HIV, STIs data and use the statistical approach to explain the effect of HIV and STIs on the population and solve problems <b>Statistics</b> <b>Statistics</b> • Statistics • Define statistical concepts• Define statistical conceptsHidividual seat work or work in mixed groups, according to abilities, gender and learning styles. <i>High School (Book 1</i> (Pearson)• Effective CommunicationStudent will use the HIV, STIs data and use the statistical approach to explain the effect of HIV and STIs on the population and solve problems <b>J discuss and define</b> <b>A to and rates</b> <b>6. Define and analyze</b> scales and scale drawing• Frequency table mean), stern and leaf plotA statistics a. Statistics <b>B. Secondary Texts</b> <b>Population data</b> <b>B. Secondary Texts</b> <b>Population data</b> <b>B. Secondary Texts</b> <b>Population data</b> ability• Creativity & and rates ability	ply concepts of atistics, ratio, rates	oncepts of these topic s, ratio, rates 1. def	cs, learners will: fine and discuss	2. Ratio and Rates 3. Percentages	<u>activities</u>	Mathematics for	COMPETENCES
Image: Properties of the statistical the effect of HIV and STIs on the effect of HIV and STIs on the population and solve problemsImage: Properties of the statistical and STIs on the population and solve problemsImage: Properties of the statistical and STIs on the population and solve problemsImage: Properties of the statistical and solve problemsImage: Properties of the statistical approach to explain the effect of HIV and STIs on the population and solve problemsImage: Properties of the statistical approach to explain the effect of HIV and STIs on the population and solve problemsImage: Properties of the statistical approach to explain the effect of HIV and scale drawingImage: Properties of the statistical approach to explain the effect of HIV and STIs on the population and solve problemsImage: Properties of the statistical approach to explain the effect of HIV and scale drawingImage: Properties of the statistical approach to explain the effect of HIV and STIs on the population and solve problemsImage: Properties of the statistical approach to explain the effect of HIV and STIs on the population and solve problemsImage: Properties of the statistical approach to explain the effect of HIV and the scale and scale drawingImage: Properties of the statistical approach to explain the effect of HIV and the scale and the scale and scale drawingImage: Properties of the scale and t	nd percentages to olve problems on	centages to statistics oblems on 2 cor	nstruct Frequency	<ul> <li>Statistics</li> <li>Define statistical</li> </ul>	in mixed groups, according to	Senior	Effective
Student will use the HIV, STIs data and use the statistical approach to explain the effect of HIV and STIs on the population and solve problemsS. anscuss Graphical histograms. Measures of central tendency 	ese topics.	pics. table	auga Cronhicol	concepts	styles.	(Pearson)	Communication     Analytical Skills.
use the statistical approach to explain the effect of HIV and STIs on the population and solve problems4. discuss and define (mode, median and plotof central tendency (mode, median and plotdefine and discuss (a. StatisticsPopulation dataProblem Solvi skills4. discuss and define (mode, median and plot5. Define and discuss (mode, median and plota. Statisticsb. Frequency table c. Graphical displayLinks:• Organizationa ability0. Averages solve problems6. Define and analyze scales and scale drawing• Organizationa (mode, median and plotc. Graphical displays• Organizationa (mode, median and plot	udent will use the IV, STIs data and	will use the TIs data and <b>5. display</b>		histograms. Measures	Assist learners to:	<b>B. Secondary Texts</b>	<ul> <li>Digital Skills,</li> <li>Research and</li> </ul>
In and STIs on the population and solve problems5.Define and discuss discussmean), stern and leaf 	se the statistical opproach to explain	statistical h to explain <b>4.</b> dis <b>Averages</b>	cuss and define	(mode, median and	a. Statistics	Population data	Problem Solving skills
population and solve problems6.Define and analyze scales and scale drawing•Graphical displaysd.Averages e.www.khanacademy.c om•Creativity & Innovation ski	e effect of HIV	ct of HIV s on the <b>5.</b> Det <b>Ratio and</b>	fine and discuss rates	mean), stern and leaf plot	<ul><li>b. Frequency table</li><li>c. Graphical display</li></ul>	Links:	<ul> <li>Organizational ability</li> </ul>
	opulation and	ion and <b>6. De</b> scales and	fine and analyze scale drawing	Graphical displays	<ul><li>d. Averages</li><li>e. Ratio and rates</li></ul>	<u>www.khanacademy.c</u> om	<ul> <li>Creativity &amp; Innovation skills</li> </ul>
relating to scale drawing ratio rates in problem solving - Averages - Average	lating to scale	to scale <b>7.</b> Definition of rates in	monstrate the use	<ul> <li>Box and whisker plot</li> <li>Averages</li> </ul>	<b>discuss and analyze</b> :	www.mathway.com	ASSESSMENT
and percent, <b>8.</b> Define and discuss travel graphs and <b>b.</b> Ratio <b>b.</b> Scale drawing <b>d.</b> But states and states <b>d.</b> But states and states and states <b>d.</b> But states and states and states <b>d.</b> But states and states	id percent,	rcent, <b>8. Det</b> <b>travel gra</b>	fine and discuss	<ul><li> Ratio</li><li> Scale drawing</li></ul>	drawing demonstrate:	<u>www.m.quickmath.co</u> <u>m</u>	STRATEGIES:
conversion graphsRatesa. the use of rates inwww.chegg.comCan be used to9Identify and discuss• Using ratesproblem solvingwww.chegg.comcheck competer		conversion 9 Ide	n graphs	Rates • Using rates	a. the use of rates in problem solving	www.chegg.com	Can be used to check competences
percentages     Travel graphs and conversion graphs     define and discuss :     www.symbolab.com     Select relevant options:		percentag	es	Travel graphs and conversion graphs	define and discuss :	www.symbolab.com	Select relevant options:

1 U	0. Solve problems Jsing percentages	<ul> <li>Using percentages</li> <li>Define statistical concepts</li> <li>Frequency tables and histograms. Measures of central tendency (mode, median and mean), stern and leaf</li> </ul>	<ul> <li>a. travel graphs and conversion graphs</li> <li>identify and discuss <ul> <li>a. percentages</li> </ul> </li> <li>solve problems: <ul> <li>a. Using percentages</li> <li>define and explain the concepts of statistical terminologies and</li> </ul> </li> </ul>	www.cymath.com	<ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> </ul>
			<ul> <li>representing HIV data to make a frequency table</li> <li>c. use the frequency table to construct a histogram</li> <li>d. use the data to find the central tendency (mean, mode, median)</li> <li>e. From the data, construct the stem and leaf plot</li> <li>f. use the data to construct the box and whisky plot</li> </ul>		

**GRADE:** 11 1

**PERIOD:** 

UNIT I

**TOPIC: MODULAR ARITHMETIC** 

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
Learners are able to apply polygonal arithmetic and modular arithmetic to perform basic operations (addition, subtraction, multiplication and division) on modular arithmetic.	<ul> <li>: Upon the completion of this topic learners will:</li> <li>1. define and discuss Polygonal arithmetic</li> <li>2. define and discuss Modular arithmetic</li> <li>3. define and discuss cyclic variables</li> <li>4. Divide Using Modular arithmetic</li> </ul>	<ul> <li>Polygonal arithmetic</li> <li>Modular arithmetic</li> <li>Cyclic variables</li> <li>Using Modular arithmetic</li> </ul>	Inclusive and Differentiated activitiesIndividual seat work or work in mixed groups, according to abilities, gender and learning styles.Assist learners to:define and discuss a. Polygonal arithmetic b. Modular arithmetic c. cyclic variablesdivide: a. Using Modular arithmetic	Primary Text         Mathematics for         Senior         High School         (Book,2 (Pearson))         Links:         www.khanacade         my.com         www.mathway.co         m         www.mathway.co         m         www.chegg.com         www.symbolab.co         m         www.cymath.com	EXPECTED COMPETENCIES • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills ASSESSMENT STRATEGIES: Can be used to check competences. Select relevant options: • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

**PERIOD:** 

<u>1</u> <u>11</u> **GRADE:** 

UNIT II

#### **TOPIC:** INDICES AND LOGARITHMS

LEARNING OUTCOMES	CONTENTS	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
Learners are able to apply to concepts to solve problems on indices, exponential growth, and apply logarithmic laws to solve problems	<ul> <li>Upon the completion of this topic learners will:</li> <li>1. Define and discuss Indices( notation, laws )</li> <li>2. Define and discuss properties of indices</li> <li>3. Define and discuss exponential growth</li> <li>4. Discuss and solve negative Powers</li> <li>5. Define and discuss rational powers</li> <li>7. Define and discuss rational powers</li> <li>8. Define and apply the Logarithms functions to solve problems</li> <li>8. Define and apply base ten logarithms</li> <li>9. Solve logarithmic of numbers greater than 10</li> <li>10. Solve logarithmic of numbers between o and 1</li> <li>11. Define and discuss laws of logarithms</li> </ul>	<ul> <li>Indices</li> <li>Exponential growth</li> <li>Negative Powers</li> <li>Properties of indices</li> <li>Rational powers</li> <li>Logarithms</li> <li>Logarithms functions</li> <li>Base ten logarithms</li> <li>Logarithmic of numbers greater than 10</li> <li>Logarithmic of numbers between o and 1</li> <li>Laws of logarithms</li> </ul>	Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Assist learners to : define and discuss a. Indices( notation, laws ) b. exponential growth discuss and solve a. negative Powers b. properties of indices c. rational power d. logarithms apply : a. Logarithms functions to solve problems Define and apply: a. base ten logarithms solve a. logarithmic of numbers greater than 10 b. Solve logarithmic of numbers between o and 1 define and discuss	A. Primary TextMathematics for SeniorHigh School (Book ,2 (Pearson)B. Secondary TextsCore Mathematics for West Africa by Asiedu published by Aki-Ola Series.Links:www.khanacademy.comwww.mathway.comwww.mathway.comwww.chegg.comwww.symbolab.comwww.cymath.com	<ul> <li>COMPETENCIES</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENT</li> <li>STRATEGIES:</li> <li>Can be used to check competences. Select relevant options:         <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> </ul> </li> </ul>

	a. laws of logarithms	•	-Test
		•	-Exams

**PERIOD:** 11

**GRADE:** 

# <u>11</u> SURDS AND PERCENTAGES **TOPIC:**

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
Learners are able to apply skills to solve problems on surds (simplifying, multiplying and dividing) and compute simple and compound interests, depreciation and hire purchase.	<ul> <li>: Upon the completion of this topic learners will:</li> <ol> <li>Define and discuss surds</li> <li>Simplify surds</li> <li>Product and quotients of surds</li> <li>Compound interest in relation to</li> <li>Simple interest</li> <li>Define and discuss Interest formulae</li> <li>Define and discuss depreciation and hire purchase</li> </ol> </ul>	<ul> <li>Surds</li> <li>Simplifying surds</li> <li>Product and quotients of surds</li> <li>Compound interest in relation to simple interest</li> <li>Interest formulae</li> <li>Depreciatio n</li> </ul>	Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Assist learners to : define and discuss a. Surds simplify a. surds Product and quotients of: a. surds Compound interest in relation to - Simple interest Define and discuss a. Interest formulae b. Depreciation c. Hire purchase	A. Primary Text         Mathematics for Senior         High School (Book,2         (Pearson)         B. Secondary Texts         Core Mathematics for West         Africa by Asiedu and         published by Aki-Ola Series         Links:         www.khanacademy.com         www.mathway.com         www.mathway.com         www.symbolab.com         www.cymath.com	EXPECTED COMPETENCES • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills ASSESSMENT STRATEGIES: Can be used to check competences. Select relevant options: • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

# PERIOD:111GRADE:11TOPIC1:VARIATION

LEARNING OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	EVALUATION /COMPETENCIES
Learners are able to apply skills to solve problems on direct, inverse, joint and partial variation.	Upon completion of this topic learners will: 1. Define and solve direct Variation 2. Define and solve Inverse Variation 3. Define and solve Joint variation 4. Define and solve partial variation	<ul> <li>Direct Variation</li> <li>Inverse Variation</li> <li>Joint variation</li> <li>Partial variation</li> </ul>	Inclusive and Differentiated activities         Individual seat work or work in mixed groups, according to abilities, gender and learning styles.         Assist learners to: analyze and solve a. direct Variation b. Inverse Variation c. Joint variation d. partial variation	A. Primary Text         Mathematics for         Senior         High School (Book         2) (Pearson)         B. Secondary Texts         Core Math         Links:         www.khanacademy.         com         www.mathway.com         www.mathway.com         www.chegg.com         www.symbolab.com         www.cymath.com	<ul> <li>EXPECTED COMPETENCES:</li> <li>Effective Communication <ul> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENTS</li> </ul> </li> <li>STRATEGIES: <ul> <li>Can be used to check competences. Select relevant options:</li> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul> </li> </ul>

# PERIOD:111GRADE:11TOPIC 11:QUADRATIC FUNCTIONS AND EQUATIONS

LEARNING	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/
OUTCOMES					ASSESSMENTS
Learners are able to apply concepts to graph quadratic functions and equations, solve quadratic equations by the following methods: (I ) factorization, (ii) by completing the squares and using (iii) quadratic formula and solve word problems on quadratic equations	<ul> <li>Upon the completion of this topic learners will:</li> <li>Define and discuss quadratic functions</li> <li>Define and Solve quadratic equations</li> <li>Solving quadratic equations by factorization</li> <li>Solving Quadratic problems</li> <li>Solving quadratic equations by completing the square (optional)</li> <li>Draw quadratic graphs</li> <li>Solving quadratic equations graphically</li> </ul>	<ul> <li>Quadratic functions</li> <li>Quadratic equations</li> <li>Solving quadratic equations by factorizatio n</li> <li>Quadratic problems</li> <li>Solving quadratic equations by completing the square (optional)</li> <li>Quadratic graphs</li> <li>Solving quadratic equations by completing the square (optional)</li> </ul>	Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Assist learners to: define and discuss a. quadratic functions define and Solve: a. quadratic equations Solving: a. quadratic equations by factorization b. Quadratic problems c. quadratic equations by completing the square (optional) draw: a. quadratic graphs solving: a. quadratic equations graphically	A. Primary Text Mathematics for Senior High School (Book 2 (Pearson) B. Secondary Texts Core Mathematics for West African Schools by Peter Asiedu and published by Aki- Ola Series Links: www.khanacademy.com www.mathway.com www.mathway.com www.chegg.com www.symbolab.com www.cymath.com	<ul> <li>COMPETENCIES</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills <u>ASSESSMENT</u></li> <li>STRATEGIES:</li> <li>Can be used to check competences. Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul> </li> </ul>

GRADE 11

PERIOD 1V

**TOPIC: MEASURATION** 

LEARNING	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	EVALUATION
OUTCOMES				RESOURCES	/COMPETENCIES
Learners are able	<b>MENSURATION:</b>	• The circle as a	<b>Inclusive and Differentiated</b>	<u>A. Primary Text</u>	<b>EXPECTED COMPETENCES:</b>
to demonstrate skills in discussing topics on mensuration and solve basic problems relating to mensuration.	<ul> <li>Upon the completion of this topic learners will:</li> <li>1. Discuss and construct the circle as a locus</li> <li>2. State and use circle theorems</li> <li>3. Identify and construct tangents to a circle</li> <li>4. Identify and construct alternate segment</li> <li>5. Calculate perimeter of plane shapes</li> <li>6. Find the area of rectangles and square</li> <li>7. Find the area of triangles</li> <li>8. Find the area of triangles</li> <li>9. Discuss and construct Circles</li> <li>10. Calculate the arcs and sectors</li> </ul>	<ul> <li>Circle theorems</li> <li>Circle theorems</li> <li>Tangents to a circle</li> <li>Alternate segment</li> <li>Perimeter of plane shapes</li> <li>Area of rectangles and square</li> <li>Area of parallelograms</li> <li>Area of triangles</li> <li>Circles Arcs and sectors</li> </ul>	activities activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Assist learners to: discuss and construct a. the circle as a locus State and use a. circle theorems identify and construct: a. tangents to a circle a. alternate segment Calculate a. perimeter of plane shapes Find the area a. rectangles and square b. parallelograms c. triangles discuss and construct: a. Circles name the part a. Circle calculate: a. arcs and sectors	Mathematics for Senior High School (Book 2 (Pearson) B. Secondary Texts Core Mathematics for West African School by Peter Asiedu and published by Aki-Ola Series. Links: www.khanacademy.com www.mathway.com www.mathway.com www.chegg.com www.symbolab.com	<ul> <li>Analytical skills</li> <li>Problem-solving skills</li> <li>Creativity and innovation skills</li> <li>Digital Skills</li> </ul> ASSESSMENT STRATEGIES: Can be used to check competences. Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul>

# PERIOD:VGRADE:11TOPIC:TRIGONOMETRY

LEARNING	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/ASSESSMENTS
OUTCOMES				RESOURCES	
Learners are able to demonstrate analytical skills to solve trigonometric problems.	<ul> <li>Upon the completion of this topic learners will:</li> <li>1. Define and compute angle of slope and gradient</li> <li>2. Define and compute the tangent of an angle</li> <li>3. Find heights and distances</li> <li>4. Compute problems involving rotation</li> <li>5. Define and compute cosine of an angle</li> <li>6. Define and compute sine of an angle</li> <li>7. Discuss the uses of trigonometry</li> </ul>	<ul> <li>Angle of slope and gradient</li> <li>The tangent of an angle</li> <li>Finding heights and distances</li> <li>Problems involving rotation</li> <li>Cosine of an angle</li> <li>Sine of an angle</li> <li>Uses of trigonometry</li> <li>Trigonometric ratios of 30®,60® and 45®</li> <li>Angles of elevation and depression</li> </ul>	Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Assist learners to: define and compute: • angle of slope and gradient • tangent of an angle find: heights and distances, apply the use of trigonometric ratios. compute: problems involving rotation Define and compute • cosine of an angle • sine of an angle discuss: uses of trigonometry calculate: • the value trigonometric	A. Primary Text Mathematics for Senior High School (Book ,2 (Pearson) B. Secondary Texts Core Mathematics for West African Schools by Peter Asiedu and published by Aki-Ola Series Links: www.khanacademy.com www.mathway.com www.mathway.com www.chegg.com www.symbolab.com www.cymath.com	<ul> <li>EXPECTED COMPETENCES</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills ASSESSMENT</li> <li>STRATEGIES:</li> <li>Can be used to check competences. Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul> </li> </ul>

<b>8.</b> Calculate the	• ratios of 30®,60®		
value	and 45®		
trigonometric	find: the inverse of		
ratios of	trigonometry ratio		
30®.60® and	calculate :angles of		
45®	elevation and depression		
9. Find the			
inverse of			
trigonometry			
ratio			
Angles of elevation			
and depression			
_			

PERIOD:V1GRADE:11

**TOPIC: PROBABILITY** 

LEARNING OUTCOMES	Objectives	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ASSESSMENTS
Learners are able to: Solve problems on probability determining relative frequency, calculate compound events, compute union of events and intersection of events and independent events	<ul> <li>: Upon the completion of this topic learners will:</li> <li>1. Define and discuss probability</li> <li>2. Determine the relative frequency</li> <li>3. Calculate compound events</li> <li>4. Compute Union of events</li> <li>5. Compute intersection of events</li> <li>6. Compute independent events</li> </ul>	<ul> <li>Probability</li> <li>Relative frequency</li> <li>Compound events</li> <li>Union of events</li> <li>Intersection of events</li> <li>Intersection of events</li> <li>Review of the basic concepts of set, Venn, tree diagram, and contingency tables</li> <li>Sample space and events of an experiment</li> <li>The probability of an event (STIs, HIV, teenage pregnancy, rape, relationship)</li> <li>The odds of an events</li> </ul>	Inclusive and Differentiated activities Individual seat work or work in mixed groups, according to abilities, gender and learning styles. Assist learners to: define and discuss a. probability determine: a. the relative frequency calculate: a. compound events compute: a. Union of events b. intersection of events c. independent events Brainstorm on the definition and concepts associated with probabilities, e.g. sample space, event, odds for, odds against, simple events mutually exclusive events etc. From a sample space using the following as events: STI, HIV, teenage pregnancy, rape relationship etc.	A. Primary Text Mathematics for Senior High School (Book ,2 (Pearson) B. Secondary Texts Population Data Population Data Links: www.khanacade my.com www.hhanacade my.com www.hathway.co m www.nathway.co m www.negg.com www.symbolab.co m www.cymath.com	<ul> <li>EXPECTED COMPETENCES</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENT</li> <li>STRATEGIES:</li> <li>Can be used to check competences. Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul> </li> </ul>

	a. Find the probability		
	of each event in		
	activity two. e.g.,		
	represent each of the		
	events with figure		
	obtained from the		
	data, and then find		
	the probability of		
	each		
	b Construct a sex		
	network		
	c Use the sex network		
	to show how STI and		
	HIV can be spread		
	from person to		
	another in a matrix		
	d use a deck of cards as		
	d. use a deck of cards as		
	sample space of		
	population and		
	determining the		
	probability of		
	contracting S11 from		
	the given sample		
	spaces		

# GRADE 12

PERIOD 1

UNIT I

TOPIC: SEQUENCE AND SERIES

				RESOURCES	ASSESSMENTS
1	. Definition of	Inc	clusive and Differentiated	Prescribed	EXPECTED
	arithmetic	act	ivities	textbook:	COMPETENCES:
2 , 3 ic 5 it 6 , 6	<ul> <li>arithmetic</li> <li>Sequence(progression</li> <li>State the formula for arithmetic sequence and use it to solve problems</li> <li>Definition of geometric sequence (progression)</li> <li>State its formula and us it to solve problems</li> <li>State the formula for finding the sum of arithmetic series and use it to solve problems</li> <li>State the formula for finding the sum of arithmetic series and use it to solve problems</li> <li>State the formula for finding the sum of geometric series and use it to solve problems</li> <li>State the formula for finding the sum of geometric series and use it to solve problems</li> </ul>	act Ind mi: ger sty Ex 1. 2. 3.	ivities lividual seat work or work in ked groups according to inder, abilities and learning les ercises/Assignment Assist learners to: define and discuss Arithmetic sequence and geometric sequence? Why are they called arithmetic progression and geometric progression? State and discuss State and discuss the formula for A.P.( Arithmetic Progression) and geometric progression and use them to solve basic problems. State the formula for finding the sum of arithmetic series and geometric series and use them to solve problems	textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Links: www.khanacademy.comwww.mathway.comwww.mathway.comwww.negg.comwww.chegg.comwww.symbolab.comwww.cymath.com	<ul> <li>COMPETENCES:</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> </ul> ASSESSMENT STRATEGIES: Can be used to check competences. Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> </ul>
ic	3 4 5 6	<ul> <li>a. Definition of geometric sequence (progression)</li> <li>4. State its formula and us it to solve problems</li> <li>5. State the formula for finding the sum of arithmetic series and use it to solve problems</li> <li>6. State the formula for finding the sum of geometric series and use it to solve problems</li> <li>6. State the formula for finding the sum of geometric series and use it to solve problems</li> </ul>	<ul> <li>a. Definition of geometric sequence (progression)</li> <li>4. State its formula and us it to solve problems</li> <li>5. State the formula for finding the sum of arithmetic series and use it to solve problems</li> <li>6. State the formula for finding the sum of geometric series and use it to solve problems</li> <li>6. State the formula for finding the sum of geometric series and use it to solve problems</li> <li>6. State the formula for finding the sum of geometric series and use it to solve problems</li> </ul>	<ul> <li>and use it to solve problems</li> <li>Definition of geometric sequence (progression)</li> <li>State its formula and us it to solve problems</li> <li>State the formula for finding the sum of arithmetic series and use it to solve problems</li> <li>State the formula for finding the sum of arithmetic series and use it to solve problems</li> <li>State the formula for finding the sum of arithmetic series and use it to solve problems</li> <li>State the formula for finding the sum of geometric series and use it to solve problems</li> <li>State the formula for finding the sum of geometric series and use it to solve problems</li> <li>State the formula for finding the sum of geometric series and use it to solve problems</li> <li>State the formula for finding the sum of geometric series and use it to solve problems</li> <li>State the formula for finding the sum of geometric series and use it to solve problems</li> </ul>	Instruction of geometric geometric sequence (progression)Exercises/Assignment Assist learners to: define and discussSupplementary books4. State its formula and us it to solve problems1. Arithmetic sequence and geometric sequence? Why are they called arithmetic progression and geometric progression?Links:5. State the formula for finding the sum of arithmetic series and use it to solve problems2. State and discuss to solve problems.www.khanacade my.com6. State the formula for finding the sum of geometric series and use it to solve problems3. State the formula for finding the sum of geometric series and use it to solve problems3. State the formula for finding the sum of geometric series and geometric series and use it to solve problems3. State the formula for finding the sum of geometric series and geometric series and use it to solve problems3. State the formula for finding the sum of geometric series and geometric series and use it to solve problemswww.chegg.com6. State the formula for finding the sum of geometric series and use it to solve problems3. State the formula for finding the sum of arithmetic series and geometric series and use them to solve problemswww.cymath.com

sequence or			• -Quiz
geometric			• -Test
progression and use	it		• -Exams
to solve problems			
6. State the equation or formula for finding the sum of an arithmetic seri and use the formula	es		
to solve problems			
7. State the formula for finding the sum of a geometric series and it to solve problems	1		

#### Grade 12 Period 1 UNIT II TOPIC: BEARINGS

OUTCOMES	CONTENTS	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCIES ASSESSMENT
Learners are able to apply concepts to interpret bearing as direction, represent a bearing of one point from another as (r, q) and calculate the magnitude and angle of a bearing	Upon completion of this topic, learners will 1. Interpret bearing as direction of one point from another 2. Write bearing of one point from another as (r, q) 3. Find the bearing of a point A from another point, given the bearing of B.	<ol> <li>Definition of bearings</li> <li>Distance Bearing Problems</li> </ol>	<ul> <li>Inclusive and Differentiated Activities</li> <li>Individual seat work or work in mixed groups according to gender, abilities and learning styles</li> <li>Assist learners to: <ol> <li>Define and discuss bearing.</li> </ol> </li> <li>use a graph sheet and Cartesian coordinate system and label the positive x axis as E (East), negative x axis as W(West), positive y axis as N(North) and the negative y axis as S (South). Use any given angle, locate the direction by measuring the angle from the N in a clockwise direction</li> <li>use graphical method or trigonometry to solve problems involving distance and bearing</li> </ul>	Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Mathematical set, graph sheets Links: www.khanacademy.com www.mathway.com www.mathway.com www.chegg.com www.symbolab.com www.cymath.com	Expected Competencies         • Effective Communication         • Analytical Skills,         • Digital Skills,         • Research and Problem Solving skills         • Organizational ability         • Creativity & Innovation skills         ASSESSMENT         STRATEGIES:         Can be used to check competences. Select relevant options:         • -Attendances         • -Oral questions and Answers         • -Class Assignment and Participation         • -Observation         • Assignments         • -Research         • Quiz         • -Test         • -Exam

SEMESTER ONE

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# GRADE12PERIOD1UNIT IIITOPIC:CONSTRUCTIONS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	EVALUATION
Y	1 0	1 0		RESOURCES	
Learners are able to apply the concepts to construct angles, triangles and parallelograms and employ loci to construct geometric figure	<ol> <li>Construction without measurement</li> <li>Construction of angles</li> <li>Construction of triangles and quadrilaterals</li> <li>Locus</li> <li>Some special loci</li> </ol>	<ol> <li>Construction without measurement</li> <li>Construction of angles</li> <li>Construction of triangles and quadrilaterals</li> <li>Locus</li> <li>Some special loci</li> </ol>	<ul> <li>Inclusive and Differentiated Learning</li> <li>Individual seat work or work in mixed groups according to gender, abilities and learning styles.</li> <li>1. Use your set square with one edge against the given line. Place a ruler against another edge of set square. Slide the set square to its required position and the line</li> <li>2. Use your compass and ruler to construct an angle bisector</li> <li>3. Use your pair of compass and ruler to construct parallel lines without using a set square.</li> <li>4. Use your pair of compass and ruler to construct angles, triangles, quadrilaterals</li> <li>5. Define, discuss and identify locus and some special loci: mediator , angle bisector, and parallel line</li> </ul>	Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Mathematical set, graph sheets Links: <u>www.khanacademy.com</u> <u>www.mathway.com</u> <u>www.mathway.com</u> <u>www.chegg.com</u> <u>www.symbolab.com</u> <u>www.cymath.com</u>	<ul> <li>Competencies</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENT</li> <li>STRATEGIES:</li> <li>Can be used to check competences.</li> <li>Select relevant options:</li> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul>

### SEMESTER ONE

GRA	ADE: 12				
PER	RIOD: II				
TOP	IC 1: STATIST	TICS I			
OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
				RESOURCES	ASSESSMENTS
Learners are able to demonstrate concepts by representing data in graphical forms: (bar chart and pie chart, define grouped data and construct a frequency table, calculate the central tendencies of grouped data and construct the cumulative frequency curve and compute the quartiles and percentiles	<ul> <li>Upon completion of this topic, learners will:</li> <li>Express data in graphical forms using bar chart and pie chart</li> <li>Define grouped data and construct the frequency table</li> <li>Calculate the mean and mode of grouped data</li> <li>Calculate the Median</li> <li>Construct the cumulative frequency curve and</li> </ul>	<ol> <li>Bar Chart and pie chart</li> <li>Grouped data</li> <li>Mean and mode</li> <li>Median</li> <li>Cumulative frequency</li> <li>Quartiles and percentiles</li> </ol>	Inclusive and DifferentiatedLearningIndividual seat work or work in mixed groups according to gender, abilities and learning styles.Assignments/Exercises1. Go to any nearby health center and collect data on malaria, typhoid and measles for a particular month and construct bar and pie charts;2. Define, discuss and identify of grouped data3. Construct a cumulative frequency table using the population data and determine the mean and mode4. Determine the median	Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Mathematical set, graph sheets Links: <u>www.khanacademy.co</u> <u>m</u> <u>www.mathway.com</u> <u>www.mathway.com</u> <u>www.chegg.com</u> www.symbolab.com	EXPECTED COMPETENCES: • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills ASSESSMENT STRATEGIES: Can be used to check competences. Select relevant options: • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Ouiz
F	Calculate the quartiles and percentiles		<ul> <li>Construct a cumulative frequency curve and determine the quartiles and percentiles from the graph.</li> </ul>	www.cymatn.com	<ul><li> -Test</li><li> -Exams</li></ul>

# GRADE:12PERIOD:IITOPIC 11:STANDARD DEVIATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOU	COMPETENCES/
				RCES	ASSESSMENTS
Learners are	Upon	<b>1.</b> Dispersion	<b>Inclusive and Differentiated</b>	Prescribed textbook:	<b>EXPECTED COMPETENCES:</b>
able to	completion of	<b>2.</b> Deviation	Learning	Mathematics for Senior	
understand the	this topic,	<b>3.</b> Standard		High Schools Students'	Effective Communication
spread of data	learners will	deviation	Individual seat work or work in	Book 3& 4 by Pearson	Analytical Skills,
and apply skills			mixed groups according to gender,	5	Digital Skills,
to compare and	1. Define,		abilities and learning styles	Supplementary books	Research and Problem Solving
analyze two or	discuss and				skills
more sets of	identify		Assignments/Exercises	Links:	Organizational ability
	dispersion				Creativity & Innovation skills
data. Skills are	2. Define and		Define and discuss	www.khanacademy.com	ASSESSMENT
applied in	discuss		1 Define and discuss dispersion	www.mathway.com	
almost all	and		1. Define and discuss dispersion. How can dispersion be	www.muthwuy.com	STRATEGIES:
disciplines in	calculate		measured more accurately	www.m.quickmath.com	
life.	3 Define and		2. Use a given data to		Can be used to check competences.
	calculate		demonstrate dispersion and	www.chegg.com	Select relevant options:
	standard		find the range, the interquartile	www.www.aum.halah.aam	a Attandanasa
	deviation		range and semi interquartile	www.symbolab.com	• -Attendances
			range	www.cymath.com	• -Oral questions and Answers
			Define and discuss	<u></u>	<ul> <li>-Class Assignment and</li> </ul>
			3. Assist learners define and		Participation
			discuss deviation, variance		-Observation
			4. Assist learners define and		• -Assignments
			discuss standard deviation and		• -Research
			variance .State the formula for		
			standard deviation and apply		
			same to a given data and find		• -1est
			does the standard deviation. What		• -Exam
			or the mean		
			or the mean>		

### SEMESTER ONE

# GRADE:12PERIOD:IITOPIC 111:INTERPRETATION OF LINEAR AND QUADRATIC GRAPHS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITTIES	MATERIALS/RESOURCES	COMPETENCES/
					ASSESSMENTS
Learners are able	Upon completion	1. Graphing of	<b>Inclusive and Differentiated</b>	Prescribed textbook: Mathematics for	EXPECTED COMPETENCES
to demonstrate	of this topic,	simultaneous	<u>Learning</u>	Senior High Schools Students' Book 3 & 4	
analytical and	learners will	equations: one		by Pearson	Effective Communication
problems solving		linear and one	Individual seat work or work		<ul> <li>Analytical Skills,</li> </ul>
skills to graphs	1. solve	quadratic	in mixed groups according to	Supplementary books	Digital Skills,
and interpret	simultaneous	•	gender, abilities and learning	Create the state and an	Research and Problem Solving
them and make	equations, one		styles	Graph sneets, rulers	skills
informed	linear and one	<b>a b b b b b b b b b b</b>		Links	<ul> <li>Organizational ability</li> </ul>
decisions Skills	quadratic. Using	2, Using	Assignments/Exercises		Creativity & Innovation skills
are applicable in	graphs.	quadratic graph	1 Aggist loormore to use	www.khanacademy.com	ASSESSMENT
the business		to solve	a graph sheet and		STDATECIES.
world to	2. use a	problems	graph a given linear	www.mathway.com	<u>STRATEGIES.</u>
determine cost	quadratic graph to		and quadratic	www.m.guickmath.com	Can be used to check competences.
revenues etc	solve related		equations in the same	www.in.quickinatii.com	Select relevant options:
Tevenues, etc.	equations	3. Finding the	Cartesian coordinate	www.chegg.com	
	2 6 1 4	range of values	system.		• -Attendances
	3. find the	of x for which y	Mark the points where	www.symbolab.com	• -Oral questions and Answers
	range of values of	is increasing or	the two graphs meet	www.cymath.com	• -Class Assignment and
	x for which y is	decreasing	(intersect). The	www.cymath.com	Participation
	increasing or	deeredshig	coordinates at the		<ul> <li>Observation</li> </ul>
	decreasing		points of intersection		• _Assignments
	1 find the		are solutions for the		Assignments
	4. Inite the	4, Finding the	two equation.		• -Research
	range of values of	range of values			• -Quiz
	x for which y is	of x for which y	Substitute the		• -Test
	positive or	is positive or	coordinates in both		• -Exams
	negative	negative	equations. Do they		
			satisfy both		
			equations?		
			L		

2. Using the plotted
graph, find the range
of values of x for
which y is increasing
and find the values of
x for which y is
decreasing
3. Find the range of
values of x for which
y is positive or
negative

# GRADE:12PERIOD:IITOPIC 1V:MENSURATION 2

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCES/ASSESSMENTS
Learners are able	Upon completion of	1. Calculate the	Inclusive and	Prescribed textbook:	EXPECTED COMPETENCES:
to apply the basic concepts to calculate the surface areas and volumes of these geometric figures: prisms, cones, pyramids, sphere. They are able to also calculate the distance given along the latitude and the longitude.	<ol> <li>this topic, learners will</li> <li>Calculate the surface area of prisms;</li> <li>Calculate the volume of prisms;</li> <li>Calculate the total surface of a cone</li> <li>Calculate the volume of a cone;</li> <li>Calculate the volume of a cone;</li> <li>Calculate total surface area of pyramids;</li> <li>Calculate the volumes of a pyramids</li> <li>Calculate the surface area of a sphere</li> <li>Calculate the surface area of a sphere</li> <li>Calculate the distance along a given latitude and longitude</li> </ol>	<ul> <li>surface area and volume of prisms</li> <li>Calculate the total surface area and volume of a cone</li> <li>Calculate total surface area and volumes of pyramids</li> <li>Calculate the surface area and volume of a sphere</li> <li>Calculate the distance along a given altitude and longitude</li> </ul>	Differentiated LearningIndividual seat work or work in mixed groups according to gender, abilities and learning stylesAssignments/ ExercisesDefine and discuss1. Assist learners to define and discuss following terms: prisms, surface area ,volume, cone, sphere, latitude and longitudeGiven a pr ism, find the areas of all its faces and add them to obtain the total surface area of the cross section by the	Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Graph sheets, rulers Links: <u>www.khanacademy.com</u> <u>www.mathway.com</u> <u>www.mathway.com</u> <u>www.chegg.com</u> <u>www.symbolab.com</u> <u>www.cymath.com</u>	<ul> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENT</li> <li>STRATEGIES:</li> <li>Can be used to check competences.</li> <li>Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul> </li> </ul>

	length to get the	
	volume of the prism.	
	Use the appropriate	
	formulae to calculate	
	the surface areas and	
	volumes of the	
	following: cone,	
	pyramids, and sphere.	
	Calculate the distance	
	along a given latitude	
	along a given latitude	
	and longitude.	
	along a given latitude and longitude.	

#### GRADE: 12 PERIOD: III

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCES/ASSESSMENTS
Learners are able	: Upon completion	1. Statements	Inclusive and	Prescribed textbook:	EXPECTED COMPETENCES:
OUTCOMES Learners are able to apply concepts to identify a true or false statement, form negation of simple statements, draw conclusion using implication, deduce equivalent implication from a given implication and use a Venn diagram to determine the validity or otherwise of implication or conclusion	<ul> <li><b>OBJECTIVES</b></li> <li>: Upon completion of this topic, learners will</li> <li>1. Identify and form true or false statements</li> <li>2. Form the negation of simple statements</li> <li>3. Draw conclusions using the implication sign</li> <li>4. Deduce an equivalent implication from a given implication</li> <li>5. Use Venn diagrams to determine the validity or otherwise of implication or conclusions</li> </ul>	CONTENTS <ol> <li>Statements</li> <li>Implication</li> <li>Converse</li> <li>Equivalence</li> <li>Negation</li> <li>Valid argument</li> </ol>	ACTIVITIES Inclusive and Differentiated Learning Individual seat work or work in mixed groups according to gender, abilities and learning styles Assignments /Exercises View several statements given by the teacher. Identify which statements are true and which are false and why? Assist learners discuss statements which are both open and closed statements and state examples. Define and discuss	MATERIALS/RESOURCES         Prescribed textbook:         Mathematics for Senior High         Schools Students' Book 3 & 4         by Pearson         Supplementary books         Links:         www.khanacademy.com         www.mathway.com         www.mathway.com         www.cymath.com         www.cymath.com	COMPETENCES/ASSESSMENTS EXPECTED COMPETENCES: <ul> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> </ul> STRATEGIES: <ul> <li>Can be used to check competences.</li> <li>Select relevant options:</li> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> </ul>
	implication or conclusions		examples. <b>Define and discuss</b> Assist learners define and discuss implication and illustrate them		<ul> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul>

TOPIC 1: LOGICAL REASONING

	Assist learners draw conclusions from the	
	sign of implication. Assist learners deduce an equivalent implication from a given	
	implication Assist learners use Venn diagrams to determine the validity or otherwise of implication or	
	conclusions	

GRADE: 12 PERIOD: II1

# **TOPIC 11:PERCENTAGES**

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
				RESOURCES	ASSESSMENTS
Learners are able	: Upon completion of	1.Taxation	Inclusive and Differentiated	Prescribed textbook:	<b>EXPECTED COMPETENCES:</b>
to identify	this topic, learners	2.Banking	Learning	Mathematics for Senior	
business	will	transaction		High Schools Students'	Effective Communication
partnerships,		.Hire	Individual seat work or work in	Book 3 & 4 by Pearson	<ul> <li>Analytical Skills</li> </ul>
calculate share	1.Identify business	purchase	mixed groups according to	-	<ul> <li>Digital Skills,</li> </ul>
interest or profit	partnerships and the	Household	gender, abilities and learning	Supplementary books	<ul> <li>Research and Problem Solving</li> </ul>
in a given ratio.	way they function	bills	styles		skills
calculate interest		Partnership		Links:	<ul> <li>Organizational ability</li> </ul>
on saving and	2.Calculate share	business	Assignments/Exercises	www.khanacademy.com	Creativity & Innovation skills
loans navments	interest or profit in a		1 Visit a banking institution	www.mininucudemy.com	<u>ASSESSMENTS</u>
using hire	given ratio		and let authority discuss the	www.mathway.com	STDATECIES.
nurchase	3 Calculate interast on		types of transactions that		<u>SIRATEGIES</u> .
purchase.	servings and loons		banks handle.	www.m.quickmath.com	Can be used to check competences.
They are able to	savings and ioans		Discuss	www.chegg.com	Select relevant options:
calculate taxes on	4.Calculate payment		2. Discuss your findings.		
goods and	using hire purchase		3. Define and discuss	www.symbolab.com	-Attendances
services, VAT on	6 F		Assist learners define		-Oral questions and Answers
goods and	5. Calculate taxes paid		and discuss taxation,	www.cymath.com	• -Class Assignment and
services and	on goods and services		Calculate taxes paid on		Participation
utility bills of			goods and services		-Observation
water, telephone	6.Calculate and		4. Assist learners explain and		• -Assignments
and electricity.	explain the value		calculate the value added		• -Research
	added tax (VAT)		tax (VA1 hire purchase		
	7 Calculate electricity		household bills (water and		Tost
	water and telephone		electricity bills) and		
	billo		partnership business.		• -Exams
	UIIIS				

# SEMESTER ONE

GRADE:	12
<b>PERIOD:</b>	III

# **TOPIC 111:RIGID MOTION 2 AND ENLARGEMENT**

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	<b>COMPETENCES</b>
				RESOURCES	ASSESSMENTS
Learners are able	Upon the completion of	1. Rotation and	Inclusive and Differentiated	Prescribed textbook:	EXPECTED COMPETENCES:
to apply concepts	this topic, learners will	its	Learning	Mathematics for Senior	
to rigid motion and	of an object	measurement		High Schools Students'	Effective Communication
enlargement to		2. Enlargement	Individual seat work or work in	Book 3 & 4 by Pearson	Analytical Skills,
determine image of	1. Find the image of an	a. Magnificatio	mixed groups according to		Digital Skills,
an object under	object under rotation	II and reduction	gender, abilities and learning	Supplementary books	Research and Problem Solving
rotation. enlarge or	2. Carry out an	b Negative	styles		skills
reduce the size of	enlargement of a	enlargement		Graph sheets,	Organizational ability
the image based	scale factor	c. Movements	Assignments/Exercises	mathematical sets	Creativity & Innovation skills
on K (magnifying	3 Identify a scale	and	1 Take a graph sheet and	T	ASSESSMENT
factor) do	drawing as an	enlargement	1. Take a graph sheet and	Links:	
factor), do	enlargement/reductio	d. Perspective	coordinates: A	www.khanacademv.co	<u>STRATEGIES</u> :
negative	n of a plane figure(	and	(a,b) B(a,b) C(a,b)	m	Can be used to check
enlargement,	shape)	similarity	$(a,b,), D(a_1,b_1), C(a_2,b_2)$		can be used to check
movement	4. Establish the	e. Similar	by your teacher.	www.mathway.com	ontions.
perspective, similar	relationship between	triangle	xx 1 111 1		options:
triangles, areas and	the areas and	I. Similar areas	You should have a triangle.	www.m.quickmath.com	<ul> <li>Attendances</li> </ul>
volumes	volumes of plane	and volumes	Rotate this triangle thru 90®,	www.chogg.com	Oral questions and
	figures and solids		180® anticlockwise, etc. and	www.cncgg.com	• -Oral questions and
	and their images		discuss the positions and sides	www.symbolab.com	
			of the images generated.	-	• -Class Assignment and
				www.cymath.com	Participation
			2 Given a scale factor		<ul> <li>-Observation</li> </ul>
			enlarge the triangle		<ul> <li>-Assignments</li> </ul>
			Define and discuss		-Research
			3 Define and discuss the		• -Quiz
			following:		• -Test
					• -Evams
			magnification &		
			reduction		
			Negative enlargement,		

	movement & enlargements,	
	Perspective and similarity. Similar triangles, similar areas and volumes and demonstrate them graphically.	

GRADE:1PERIOD:IIITOPIC 1V:TRIGONOMETRY 2

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCES/ASSESSMENTS
Learners are able to demonstrate and apply concepts in graphing trigonometric functions, determine the maximum and minimum values of the graphs and interpret said graphs.	<ol> <li>Graphs of simple trigonometric functions         <ul> <li>Maximum and minimum values</li> </ul> </li> <li>Drawing and interpretation of trigonometric functions</li> </ol>	<ul> <li>3. Graphs of simple trigonometric functions <ul> <li>Maximum and minimum values</li> <li>Drawing and interpretat ion of trigonome tric functions</li> </ul> </li> </ul>	Inclusive and Differentiated         Learning         Individual seat work or work in         mixed groups according to         gender, abilities and learning         styles         Assignments/Exercises         1. Draw the graphs of sinθ and cosθ, for 0®≤θ≤360®. Are the two graphs the same? If not why? Identify the maximum and minimum values of the graphs.         2. Interpret the graphs	Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Graph sheets , rulers Links: www.khanacademy.com www.mathway.com www.mathway.com www.chegg.com www.symbolab.com www.cymath.com	EXPECTED COMPETENCES: • Effective Communication • Analytical Skills, • Digital Skills, • Research and Problem Solving skills • Organizational ability • Creativity & Innovation skills STRATEGIES: Can be used to check competences. Select relevant options: • -Attendances • -Oral questions and Answers • -Class Assignment and Participation • -Observation • -Assignments • -Research • -Quiz • -Test • -Exams

GRADE12PERIODIVTOPICNUMBERS AND NUMERATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
				RESOURCES	ASSESSMENTS
Learners are able to apply concepts and solve problems in number bases, modular arithmetic, prove identities, express numbers in standard form and solve problems using powers and roots.	<ul> <li>Upon completion of this topic, learners will:</li> <li>1. Review real numbers with emphasis on (whole numbers, factors of whole numbers, factors of whole numbers, prime numbers and prime factorization of whole numbers, integers, ratio of two whole numbers and rational numbers)</li> <li>2. Convert from base ten to other bases and verse versa.</li> <li>3. Solve problems in modular arithmetic</li> <li>4. Demonstrate identities in Commutative property, Distributive property, Binomial expressions and properties of negatives</li> <li>5. Work and solve problems I using powers and roots</li> </ul>	<ol> <li>Review real numbers</li> <li>Number bases</li> <li>Modular arithmetic</li> <li>Identities</li> <li>Powers and roots</li> </ol>	<ul> <li>Inclusive and Differentiated Learning</li> <li>Individual seat work or work in mixed groups according to gender, abilities and learning styles</li> <li>Assignments/Exercises</li> <li>1. Assist learners to review real numbers considering learning objective</li> <li>2. Assist learners to convert from base ten to other bases and verse versa Discuss</li> <li>3. Assist learners to discuss modular arithmetic and solve problems in modular arithmetic</li> <li>4. Assist learners prove the identities in commutative property, Distributive property, Associative property, Distributive property, binomial expressions</li> <li>5. Assist learners represent very small or large numbers in standard form, solve problems using powers and roots</li> </ul>	Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books www.khanacademy.com www.mathway.com www.mathway.com www.chegg.com www.symbolab.com www.cymath.com	<ul> <li>EXPECTED COMPETENCES:</li> <li>Effective Communication <ul> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> </ul> </li> <li>Assessment <ul> <li>STRATEGIES:</li> </ul> </li> <li>Can be used to check competences. Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul> </li> </ul>

GRADE12PERIODIVTOPICSETS AND LOGIC

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
				RESOURCES	ASSESSMENTS
Learners are able to use sets in logic	Upon completion of this topic, learners will :	<ol> <li>Definition of sets</li> <li>Subsets</li> </ol>	Inclusive and Differentiated Learning Individual seat work or work in mixed groups	Prescribed textbook:	<b>EXPECTED COMPETENCES:</b>
Sets in rogici	<ol> <li>Define sets and use set notation ,</li> <li>Define and apply subsets</li> <li>Discuss Universal set, equal sets, equivalent sets and listing the elements of a set</li> <li>Discuss Venn diagram and it to</li> </ol>	<ol> <li>Justician Structure</li> <li>Types of sets</li> <li>Venn diagrams</li> <li>Operations on sets</li> <li>Properties of set operations</li> <li>Problem solving</li> <li>Review open statements and</li> </ol>	<ul> <li>according to gender, abilities and learning styles</li> <li>Assignments/Exercises</li> <li>1. Assist learners define sets and use set notation.</li> <li>2. Define and apply</li> <li>Assist learners define subsets and solve problems on subsets.</li> <li>Define and illustrate</li> <li>3. Assist learners define and illustrate types of sets(finite sets, infinite sets, Universal set,</li> </ul>	Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books www.khanacade	<ul> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENTS</li> <li>STRATEGIES:</li> <li>Can be used to check</li> <li>competences. Select relevant</li> </ul>
	<ul> <li>illustrate the following operations on sets: intersection of sets, disjoint sets, union of sets, and complement of a set</li> <li>5. Discuss properties of set operations</li> <li>6. Solve two sets and three sets problems using Venn diagram</li> <li>7. Review open statements, and implication and apply them using sets</li> </ul>	implications	<ul> <li>equal sets, equivalent sets, empty set)</li> <li>Discuss and apply</li> <li>Assist learners discuss Venn diagram and use it to illustrate the following operations on sets: <ul> <li>a. Intersection of sets</li> <li>b. Disjoint sets</li> <li>c. Union of sets and</li> <li>d. Complement of a set.</li> </ul> </li> <li>5. Discuss and illustrate <ul> <li>Assist learners discuss and illustrate</li> <li>properties (commutative, Associative and distributive properties) of set operations.</li> </ul> </li> <li>6. Assist learners to solve problems.</li> <li>7. Review open statements and implication and apply them using sets.</li> </ul>	my.com         www.mathway.co         m         www.m.quickmat         h.com         www.chegg.com         www.symbolab.co         m         www.cymath.com	options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test - Exams

# GRADE12PERIODIVTOPICRELATIONS AND FUNCTIONS, MAPPINGS, RATIO, PROPORTION AND VARIATION

Learners are able to apply concepts to solve problems on relations, functions and mappings and functions and variation     I. Relations and functions and functions on relations, functions and mappings and variation     Inclusive and Differentiated Learning     RESOURCES     ASSESSME Mathematics for Senior       2. Numerical mappings and functions and variation     1. Define and discuss relations, functions and mappings     1. Relations and functions and proportion     1. Relations and mappings     Individual seat work or work in mixed groups according to gender, abilities and learning styles     High Schools Students' Book 3& 4 by Pearson     EXPECTED COMPE' Mathematics for Senior       9     Numerical mappings     8. Ratio and proportion and variation     Inclusive and Differentiated functions and mappings     Www.khanacademv.com     EXPECTED COMPE' Mathematics for Senior       9     Numerical mappings     8. Ratio and proportion     Individual seat work or work in mappings     Individual seat work or work in mappings </th <th>OUTCOMES</th> <th>OBJECTIVES</th> <th>CONTENTS</th> <th>ACTIVITIES</th> <th>MATERIALS/</th> <th>COMPETENCES/</th>	OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
Learners are able to apply concepts to solve problems on relations, and proportion and variation and variation	•				RESOURCES	ASSESSMENTS
SEMESTER TWO GRADE 12 PERIOD IV TOPIC: ALGEBRAIC PROCESSES	able to apply concepts to solve problems on relations, functions and mapping, ratio and proportion and variation	<ol> <li>this topic, learner will</li> <li>Define and discuss relations and functions</li> <li>Numerical mappings</li> <li>Solve problems on relations, functions and mappings</li> <li>Calculate ratio and proportion</li> <li>Define variation and solve problems on variation</li> </ol>	functions 2. Numerical mappings 3. Ratio and proportion 4. variation	<ul> <li>Learning</li> <li>Individual seat work or work in mixed groups according to gender, abilities and learning styles</li> <li>Assignments/Exercises</li> <li>Define and discuss</li> <li>1. Assist learners define and discuss relations, functions and mappings and solve simple problems</li> <li>Define and discuss</li> <li>2. Define and discuss ratio and proportion , solve problems on ratio and proportion</li> <li>Define and discuss</li> <li>3. Define variation and discuss the types of variation, (Direct variation, Inverse variation, Joint variation and partial variation)and solve simple problems on each of them-</li> </ul>	Mathematics for Senior High Schools Students' Book 3& 4 by Pearson www.khanacademy.com www.mathway.com www.mquickmath.com www.chegg.com www.symbolab.com www.cymath.com	<ul> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENT</li> <li>STRATEGIES:</li> <li>Can be used to check competences.</li> <li>Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul> </li> </ul>
GRADE     12       PERIOD     IV       TOPIC:     ALGEBRAIC PROCESSES		•	•	SEMESTER TWO		
		GRADE12PERIODIVTOPIC:ALGI	EBRAIC PROCESS	SES		
JTCOMES OBJECTIVES CONTENTS ACTIVIIES MATERIALS/ COMPET RESOURCES ASSESS	JTCOMES	OBJECTIVES	CONTENTS	ACTIVTIES	MATERIALS/ RESOURCES	COMPETENCES/ ASSESSMENTS

programming.linear equations 8. Solve Simultaneous linear inequalitiesd. Difference of two squares e. Sum of two cubes f. Difference of two cubes Assist learners perform the following operations: a. Addition b. Subtraction c. Multiplication d. Divisionwww.symboliab.com www.symboliab.com• -Class Assignment and Participation • -Observation • -Assignments9. Formulae 10. Solve word problems10. Solve word problems• Addition b. Subtraction c. Multiplication d. Division• -Class Assignment and Participation • -Observation • -Assignments • -Assignments • -Research • -Quiz • -Test • -Exams	Learners are able to apply concepts to simplify algebraic expressions, factorize, carry substitution, solve equations & inequalities, quadratic equations, solve simultaneous linear equations and linear inequalities and perform linear	<ul> <li>: Upon completion of this topic, learners will</li> <li>1. Simplify algebraic expressions</li> <li>2. Factorize algebraic expressions</li> <li>3. Solve algebraic fractions</li> <li>4. Substitution</li> <li>5. Solve equations and inequalities</li> <li>6. Quadratic equations</li> <li>7. Solve Simultaneous</li> </ul>	<ol> <li>Simplification</li> <li>Factorization</li> <li>Algebraic fractions</li> <li>Substitution</li> <li>Equations and inequalities</li> <li>Quadratic equations</li> <li>Simultaneous linear inequalities</li> <li>Simultaneous linear programming</li> <li>Formulae</li> <li>Word problems</li> <li>Inclusive</li> <li>Inclusive</li> <li>Individua groups ad learning s</li> <li>Assignme</li> <li>Assist 1 expression terms, n algebraic</li> <li>Assis expression terms, n</li> <li>Assis expression terms, n</li> <li>Assis expression terms, n</li> <li>Assis</li> </ol>	Inclusive and Differentiated LearningIndividual seat work or work in mixed groups according to gender, abilities and learning stylesAssignments/ExercisesAssist learners to simplify algebraic expressions by adding and subtracting like terms, multiply or expand and divide algebraic expressions.1. Assist learners to factorize algebraic expressions using the following techniques: a. Common factors b. Factoring by grouping	Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Graph sheets, ruler and <u>www.khanacademy.co</u> <u>m</u> <u>www.mathway.com</u> <u>www.mathway.com</u> <u>www.chegg.com</u>	<ul> <li>EXPECTED COMPETENCES:</li> <li>Effective Communication</li> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> <li>ASSESSMENT</li> <li>STRATEGIES:</li> <li>Can be used to check competences.</li> <li>Select relevant options: <ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> </ul> </li> </ul>
for which $\frac{f(x)}{g(x)}$ is not undefined 2. Assist learners to do	perform linear programming.	<ul> <li>Simultaneous linear equations</li> <li>8. Solve Simultaneous linear inequalities</li> <li>9. Formulae</li> <li>10. Solve word problems</li> </ul>		c. Factoring quadratic trinomials d. Difference of two squares e. Sum of two cubes f. Difference of two cubes Assist learners perform the following operations: a. Addition b. Subtraction c. Multiplication d. Division And the simplification of algebraic fractions; Assist learners to find values of x for which $\frac{f(x)}{g(x)}$ is not undefined 2. Assist learners to do	www.symbolab.com www.cymath.com	<ul> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul>

 •		
	substitution and change of subject using	
	Tormulae	
	3. Assist learners to graph and solve	
	linear equations and inequalities.	
	4. Assist learners to solve quadratic	
	a. factorization.	
	b. by completing the square	
	c. and using the formula,	
	5. Assist learners solve simultaneous	
	equations by	
	a. graphs, b. elimination	
	c. substitution	
	d. and use matrices to solve,,	
	6. Assist learners graph one linear	
	inequality and determine the solution	
	region, graph two linear inequalities in the same Cartesian coordinate system	
	and determine the solution region te	
	9. Provide problems on linear	
	programming for learners to solve and	
	graph and do the analysis,	
	11. Assist learners form word problems on	
	auadratic equations and solve them	
	quadratic equations and sorve mem.	

GRADE	12
PERIOD	V

# TOPICVECTOR AND TRIGONOMETRY

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCES/ASSESSMENTS
Learners are	: Upon	1. Vectors	Inclusive and Differentiated	Prescribed textbook:	<b>EXPECTED COMPETENCES</b> :
able to	completion of this	representation	Learning	Mathematics for Senior High	
demonstrate	topic, learners will	2. Magnitude		Schools Students' Book 3& 4	Effective Communication
and apply		and direction	Individual seat work or work	by Pearson	Analytical Skills,
concepts to	1. Describe	3 Vector	in mixed groups according to		Digital Skills,
describe a	vector using	addition and	gender, abilities and learning	Supplementary books	Research and Problem Solving
vector,	number	subtraction	styles	Create sheets rules and	skills
calculate its	notation	4. Multiplication	······································	Graph sheets, ruler and	Organizational ability
magnitude and	2. Describe the	of vectors	ssignments/Exercises	www.khanacademy.com	Creativity & Innovation skills
direction. do	magnitude and	5. Resolution of	1 Assist learners represent	www.initiatuceuterity.com	ASSESSMENT
vector	direction of	a vector	a vector graphically.	www.mathway.com	STRATECIES
addition	vectors	6. Define unit	using ordered pairs and		<u>STRATEGIES</u> .
vector	3. Solve	and position	using vector notation.	www.m.quickmath.com	Can be used to check competences.
subtraction	problems that	7 Solve static		www.chegg.com	Select relevant options:
find scalar	involve vector	equilibrium	2. Assist learners		*
mu, scalar	addition and	problems	determine the magnitude	www.symbolab.com	-Attendances
product. They	A Multiply	8. Determination	and direction of the		-Oral questions and Answers
	4. Wrutupiy	of latitudes	given vector.	www.cymath.com	• -Class Assignment and
resolve a	number (scalar	and			Participation
vector, work	product)	longitudes	3. Assist learners add and		• -Observation
with unit and	5. Define and	9. Applications	vectors vectorially		<ul> <li>Assignments</li> </ul>
position	use unit	of	vectors vectoriary		Besearch
vectors, can	vector and	10 Colculate the	4 Assist learners to		
solve	position vector	lengths of	multiply a vector by a		• -Quiz
problems on	6. Determine a	objects of	scalar(number) and a		• -Test
static	vector from its	angles	vector by a vector		• -Exams
equilibrium,	magnitude of	inscribed in a	5. Assist learners to		
apply	vector	circle.	resolve a resultant vector		
trigonometry	7. Work with		into its component		
to solve	objects in		vectors		
vectors, etc.	static				
	equilibrium				

8. Determine	6. Assist learners define	
whether two	unit and position vectors	
vectors are	and illustrate them	
parallel or	7. Assist learners solve	
orthogonal	static equilibrium	
9. Determine	problems	
Latitude and	8. Assist learners to	
longitudes	calculate for latitudes	
10. Calculate the	and longitudes	
lengths of	9. Assist learners apply	
objects of	trigonometry to	
angles	problems involving	
inscribed in a	vectors	
circle	10. Assist learners to	
	calculate the lengths of	
	triangle inscribed in a	
	circle.	

GRADE12PERIODVUNITIITOPIC:TRAN

# TRANSFORMATIONS

OUTCOMES OBJECTIVES CON		CONTENTS	CONTENTS ACTIVITIES		COMPETENCES/
				RESOURCES	ASSESSMENTS
Learners are able	Upon completion	1. Movement	<b>Inclusive and Differentiated</b>	Prescribed textbook:	<b>EXPECTED COMPETENCES:</b>
to apply concepts	of this topic,	2. Transformations	Learning	Mathematics for Senior	
to movement,	learners will	and coordinates		High Schools Students'	Effective Communication
transformation and		3. Reflection	Individual seat work or work in mixed	Book 3& 4 by Pearson	Analytical Skills,
determine the	1. Define and	4. Similarities 5 Translation	groups according to gender, abilities		<ul> <li>Digital Skills,</li> </ul>
coordinates. They	discuss	J. Translation	and learning styles		Research and Problem Solving
are able to rotate	transformation			C	skills
objects under	of movement		Assignments/Exercises	Supplementary books	Organizational ability
reflection, handle	or congruency		Define and discuss	Graph sheets ruler and	Creativity & Innovation skills
similarities and	2. Find the			Gruph sheets, ruler und	ASSESSMENTS
translation.	coordinates of		1. Assist learners define and discuss	www.khanacademy.co	STRATECIES
	transformation		the concept of movement or	m	SIRAIEGIES.
	S		congruency as it relates to		Can be used to check competences.
	3. Define,		transformation.	www.mathway.com	Select relevant options:
	discuss and			www.m.aujekmath.co	
	apply the		2. Assist learners review the lesson	m	-Attendances
	reflection		on rotation and look at a problem	<u> </u>	• -Oral questions and Answers
	4 Define		coordinates. How were the other	www.chegg.com	• -Class Assignment and
	discuss and		coordinates obtained?		Participation
	apply the			www.symbolab.com	<ul> <li>-Observation</li> </ul>
	concept of		Define and discuss	www.cymath.com	• Assignments
	similarities		3 Assist learners define discuss and	<u>www.cymath.com</u>	Assignments     Decourse
	5. Define,		apply the concept of reflection		• -Research
	discuss and		Define and discuss		• -Quiz
	apply the		4. Assist learners define, discuss and		• -Test
	translation		apply the concepts of similarities		• -Exams
	u ansiauon		and translation		

Grade12PeriodVTOPICPLANE GEOMETRY

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
				RESOURCES	ASSESSMENTS
Learners are	: Upon completion of this topic,	1. Polygons	Inclusive and	Prescribed textbook:	<b>EXPECTED COMPETENCES:</b>
able to demonstrate concepts to state properties of polygons, triangles, quadrilaterals and circle theorems and solve relevant problems on each of them.	<ol> <li>learners will</li> <li>Define, and discuss polygon</li> <li>Define and discuss regular polygons and their properties</li> <li>N am e and define polygons according to their sides</li> <li>Determine interior and exterior angles of polygons and regular polygons</li> <li>Find the sum of the interior angles of a polygon and a regular polygon</li> </ol>	<ol> <li>Triangles</li> <li>Quadrilaterals</li> <li>Circle Theorems</li> </ol>	Differentiated Learning Individual seat work or work in mixed groups according to gender, abilities and learning styles Assignments/Exercises Define and discuss Assist learners define and discuss polygon.	Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Graph sheets, ruler and <u>www.khanacademy.com</u> <u>www.mathway.com</u> <u>www.m.quickmath.com</u> <u>www.chegg.com</u>	<ul> <li>Effective Communication         <ul> <li>Analytical Skills,</li> <li>Digital Skills,</li> <li>Research and Problem Solving skills</li> <li>Organizational ability</li> <li>Creativity &amp; Innovation skills</li> </ul> </li> <li>ASSESSMENTS</li> <li>STRATEGIES:</li> <li>Can be used to check competences.</li> <li>Select relevant options:</li> </ul>
	<ol> <li>Find the sum of the exterior angles of a polygon</li> <li>Solve problems on polygons</li> <li>Define, discuss isosceles, scalene and equilateral triangles</li> <li>Solve problems on isosceles, scalene and equilaterals triangles</li> <li>Define four quadrilaterals and discuss their properties</li> <li>Solve problems on quadrilaterals</li> </ol>		<ol> <li>Draw a polygon. Draw a line from a particular vertex to divide the polygon into triangles.</li> <li>Multiply the number of triangles by 180®. The product is the sum of the interior angles of the polygon.</li> <li>Define and discuss Assist learners define and discuss</li> </ol>	<u>www.symbolab.com</u> <u>www.cymath.com</u>	<ul> <li>-Attendances</li> <li>-Oral questions and Answers</li> <li>-Class Assignment and Participation</li> <li>-Observation</li> <li>-Assignments</li> <li>-Research</li> <li>-Quiz</li> <li>-Test</li> <li>-Exams</li> </ul>

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<ul> <li>12. Define circle and discuss a circle inscribed angles or triangle or quadrilaterals. And state the circle theorems for each diagram</li> <li>13. Use the theorem to solve problems with circle with inscribed angle or triangle, quadrilaterals etc.</li> <li>14. Discuss the concept of tangent to the circle. State the relevant properties</li> <li>15. Solve problems relating to a line tangent to a circle</li> </ul>	<ul> <li>regular polygons and their properties.</li> <li>Assist learners name polygons according to their sizes.</li> <li>Assist learners determine the interior and exterior angles of polygons and re polygons</li> <li>Assist learners find the sum of the interior angles of a polygon and a regular polygon</li> <li>Assist learners find the sum of the exterior angles of a polygon and a regular polygon</li> <li>Solve problems on polygons ,</li> <li>Define , discuss and illustrate</li> <li>Define , discuss and equilateral triangles</li> <li>Assist learners solve problems on isosceles,</li> </ul>	
	scalene and equilateral triangles 10. Assist learners solve problems on isosceles, scalene and equilaterals triangles	

11. Assist learners define four quadrilaterals and discuss their properties	
12. Solve problems on quadrilaterals	
<ul> <li>13. Define circle and discuss an angle or a triangle or a quadrilateral inscribed in a circle. And state the circle theorems for each diagram</li> </ul>	
14. Use the theorem to solve problems on circle with inscribed angle or triangle or quadrilaterals etc.	
<ul> <li>15. Assist learners discuss the concept of tangent to the circle. State the relevant properties.</li> <li>16. Assist learners solve problems relating to a line tangent to a circle</li> </ul>	

GRADE 12 PERIOD V UNIT IV TOPIC SOLID GE	OMETRY			
TOPICSOLID GEAOUTCOMESOBJECTIVESLearners are able to demonstrate and apply concepts , analytical and problem solving skills which applicable in all spheres of life (including business and industry): Upon completion of 	CONTENTS         1.       Common solids         2.       Prisms         3.       Cuboids         4.       Cylinder         5.       Pyramids         6.       Cone         7.       Volumes and surface area	ACTIVITIESInclusive and Differentiated LearningIndividual seat work or work in mixed groups according to gender, abilities and learning stylesAssignments/Exercises1. Share pictures of these solids with learners to see and recognize them.2. Assist learners define the following terms: a. prism, b. cuboid, c. cylinder, pyramids, d. tetrahedron hexagonal e. pyramid, f. cone and state their properties. Use their respective formulae to calculate their volumes and surface area.3. Assist learners measure the lengths and angles in solids	MATERIALS/ RESOURCESPrescribedtextbook:Mathematics forSenior HighSchools Students'Book 3& 4 byPearsonSupplementary booksGraph sheets, ruler andwww.khanacadem y.comwww.mathway.co mwww.mathway.co mwww.chegg.comwww.symbolab.co mwww.cymath.com	COMPETENCES/ ASSESSMENTSEXPECTED COMPETENCESExpected colspan="2">Competenceseffective CommunicationAnalytical Skills,Digital Skills,Organizational abilityCreativity & Innovation skillsASSESSMENTSTRATEGIES:Can be used to check competences. Select relevant options:- Attendances- Oral questions and Answers- Class Assignment and Participation- Observation- Research- Quiz- Test- Exams

GRADE12PERIODVIUNITITOPIC :PROBABILITY AND STATISTICS

OUTCOMES	OBJECTIVES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCES/
					RESOURCES	ASSESSMENTS
Learners are able to	1. Fundamental	Fundamental	Fundamental	Inclusive and	Prescribed textbook:	EXPECTED
explain following	counting principle	counting principle	counting principle	<b>Differentiated Learning</b>	Mathematics for	COMPETENCES:
concepts :	2. Compute		~		Senior High	
	actorials 2 Pormutations	Compute	Compute	Individual seat work or	Schools Students'	Effective Communication
a. Fundamental	4 Combinations	factorials	factorials	work in mixed groups	Book 3& 4 by	Analytical Skills,
b Dormutation	5. Difference	1 Dermutations	1 Permutations	according to gender,	Pearson	Digital Skills,
c. Combination and	between	2 Combinations	1.F CI IIIutations	abilities and learning		Research and Problem
probability.	permutations and	3. Difference	2.Combinations	styles	Supplementary	Solving skills
They are able to solve	combinations	between		A asiann an ta/Enanciaca	books	Organizational ability
problems on each of	6. Review basic	permutations	3.Difference	Assignments/Exercises		Creativity & Innovation
them.	concepts sets,	and	between	Discuss	www.khanacadem	
	Venn, tree	combinations	permutations and		<u>y.com</u>	ASSESSMENT
	diagrams, and	4. Review basic	combinations	1. Assist learners	www.mathwav.co	STRATEGIES:
	tables	concepts sets,		discuss the concept	m	
	7. sample space and	diagrams and	4.Review basic	of fundamental		Can be used to check
	events of an	contingency	concepts sets,	counting principle,	<u>www.m.quickmath</u>	competences. Select relevant
	experiment	tables	Venn, tree	using coin and die.	<u>.com</u>	options:
	8. probability of an	5. sample space	diagrams, and			•
	event,	and events of	contingency	Determine the combined	www.chegg.com	-Attendances
	complementary	an experiment	tables	outcomes. What will it	www.symbolab.co	• -Oral questions and
	events, mutually	6. probability of		be?	m	Answers
	exclusive events,	an event,	5. sample space	Discuss	<u></u>	• -Class Assignment
	independent	complementar	and events of an	2. Assist learners	www.cymath.com	and Participation
	conditional events	y events,	experiment	discuss the concept		• -Observation
	9. odds of an event	exclusive		of factorials and		- Assignments
	. out of the cont	events	6.	compute factorials of		• -Assignments
		events,	probability of an			• -Kesearch

		-			-		
10. Calculate the expected value	<ul> <li>independent event, and conditional events</li> <li>odds of an event</li> <li>Calculate the expected value</li> </ul>	event, complementary events, mutually exclusive events, independent event, and conditional events 7. odds of an event 8.Calculate the expected value	3. 4. 5. 6. 7. 8. 8. 8. 8. 8. 6. 5. 6. 7.	simple numbers and fractions Define and Define and discuss Assist learner s Assist learners define and discuss the concept of permutation . Define and discuss Assist learners define and discuss combination Assist learners define them .Assist learners differentiate between them .Assist learners solve simple problems on permutation and combination. Assist learners review basic concepts of sets, Venn tree diagrams, Define and discuss Assist learners define and discuss the following term: Sample space Event Odds for Odds against Simple event Mutually exclusive event,		-Quiz -Test -Exams	

1	1		1
		associated with	
		probabilities	
		I	
		9. Assist learners form a	
		sample space using	
		the following as	
		events: STI, HIV,	
		teenage pregnancy.	
		rape relationship	
		etc. Find the	
		probability of each	
		probability of each	
		event in activity two	
		e.g. represent each of	
		the events with figure	
		obtained from the	
		data, then find the	
		probability of each.	
		10. Assist learners	
		construct a sex	
		network Use the sex	
		notwork to show how	
		STL and HIV can be	
		STI and HIV can be	
		spread from person to	
		another in a matrix.	
		11. Assist learners Use a	
		deck of cards as	
		sample space of	
		population and	
		determine the	
		probability of	
		contracting STI from	
		the given sample	
		ano a	
		space.	

PERI TOPI	OD VI C EXPONENTIAL A	AND LOGARITHMIC FUNC	ΓIONS	
OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES
Learners are able to Apply concepts to evaluate, graph, change base, and solve problems on exponential functions and logarithmic functions and exponential and logarithmic equations.	<ul> <li>Upon completion of this topic, learners will</li> <li>Evaluate exponential functions</li> <li>Graph exponential functions</li> <li>Solve application problems involving exponential functions (doubling time growth model, radioactive decay, compound interest)</li> <li>Distinguish between algebraic and exponential</li> </ul>	<ol> <li>Evaluation of Exponential functions</li> <li>Graph of exponential functions</li> <li>Applications involving exponential functions(doubling time growth model ,radioactive decay, compound interest)</li> <li>Distinguish between algebraic and exponential functions</li> <li>Definition of base e</li> <li>Graph exponential functions with base e</li> <li>Review of growth and decay with base e</li> <li>Problem-solving</li> </ol>	Inclusive andDifferentiated LearningIndividual seat work orwork in mixed groupsaccording to gender,abilities and learningstylesAssignments/Exercises1. Assist learnersevaluate exponentialfunctions.2. Assist learners graphexponential functions	Prescribed textbook: Mathematics for Senior High Schools Students' Book 3& 4 by Pearson Supplementary books Graph sheets <u>www.khanacademy.com</u> <u>www.mathway.com</u> <u>www.mathway.com</u> <u>www.mathway.com</u> <u>www.chegg.com</u>

involving interest

compounding

continuously

expressions to

conversely 10. Evaluation of

CRADE

12

function

5. Define base e

7. Review growth

8. Solve application

base e

and decay with

problems interest

е

6. Graph exponential

Select relevant options: iy.co -Attendances • m -Oral questions and Answers -Class Assignment and • h.co Participation -Observation ٠ -Assignments -Research www.symbolab.com 3. Assist learners solve -Quiz problems involving www.cymath.com -Test exponential -Exams functions(doubling functions with base 9. Change of exponential time growth model, radioactive decay, logarithmic expressions compound interest) 4. Distinguish between logarithmic functions algebraic and exponential functions

COMPETENCES/ ASSESSMENTS

**EXPECTED COMPETENCES:** 

Problem-solving skill

Can be used to check competences.

Analytical skill

ASSESSMENTS

STRATEGIES:

•

•

	compounding	11. Evaluation Of common		Define and discuss	
	continuously	and natural logarithms	5.	Assist learner Define	
9.	Change expressions	using calculator		base e	
	to logarithmic	12. Graph of logarithmic			
	expressions, and	functions	6.	Assist learner graph	
	conversely	13. Interpretation of		exponential functions	
10	. Evaluate	logarithmic functions as		with base e	
	logarithmic	inverse of exponential	7.	Assist learners review	
	functions	functions		growth and decay	
11	. Evaluate common	14. Domain restrictions on		with base e	
	and natural	logarithmic functions	8.	Assist learners solve	
	logarithms using	15. Expressions of a single		to problems involving	
	calculator	of a logarithm as a sum		interest	
12	. Graph logarithmic	or difference of		compounding	
	functions	logarithms		continuously	
13	. Interpret	16. Expression of a	9.	Assist learners	
	logarithmic	logarithmic expression		change expressions	
	functions as	as a single logarithm		to logarithmic	
	inverse of	17. Evaluation of logarithms		expressions, and	
	exponential	of a general base ( other		conversely	
	functions	than base 10 or. state	10.	Assist learners	
14	. Determine domain	and use the seven basic		evaluate logarithmic	
	restrictions on	logarithmic properties		functions	
	logarithmic	18. State and use the	11.	Assist learners	
	tunctions	change-of-base formula		evaluate common	
15	. Express a single	19. Solution of exponential		and natural	
	logarithm as a sum	and logarithmic		logarithms using	
	or difference of	equation		calculator	
10		20. Solution	12.	Assist learners graph	
10	. Express a			logarithmic functions	
			13.	Assist learners	
	expression as a			interpret logarithmic	
17	Single logarithm			functions as an	
17	. Evaluale			inverse of	
	ioganumis of a			exponential functions	
	general base (				

other than base 10	14. Assist learners		
or,	determine domain		
18. State the seven	restrictions on		
basic logarithmic	logarithms		
properties	15. Assist learners		
19. State the change	express a single		
-one- of base	logarithm as a sum or		
formula	difference of		
20. Solve exponential	logarithms		
and logarithmic	16. Assist learners		
equations	express a logarithmic		
	expression as a single		
	logarithm		
	17. Assist learners		
	evaluate logarithms		
	of a general base		
	(other than 10 or e)		
	18. Assist learners state		
	the seven basic		
	logarithm		
	Properties		
	19. Assist learners state		
	the change of base		
	formula		
	20. Assist learners solve		
	problems using		
	exponential and		
	logarithms equations		
	1	1	

# GRADE12PERIODVITOPICDIFFERENTIATION AND INTEGRATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/	COMPETENCY ASSESSMENT
				RESOURCES	
Learners are able	: Upon completion of this	1. Review	<b>Inclusive and differentiated</b>	Supplementary	<b>EXPECTED COMPETENCES:</b>
to apply concepts	topic, learners will	analytic	<u>Learning</u>	book: 8 <sup>th</sup> Edition	
to find the limits of	1 Define discuss and	2 Difference	individual cost work on work	of Calculus and	problem solving skill     analytical skill
simple polynomial	apply the concept of	2. Difference	in mixed groups according to	Analytic	• analytical skill
and trigonometric	Difference quotient	3. Limits	and an abilities and learning	Geometry by	ASSESSMENT
functions, find the	2. Review slopes,	4. Differentiation	styles	George B.	
derivatives of	Tangent lines and	5. Areas under	styles	Thomas and Ross	STRATEGIES:
simple algebraic	Derivatives	the curve	Assignments/Exercises	L. Finney	
and trigonometric	3. Define and discuss	6. Integration	_	Crark sheets	Can be used to check competences.
functions. They	A Define and apply the		1. Assist learners review	Graph sheets	Select relevant options:
are able to find the	4. Define and apply the		slope, tangent lines and	www.khanacade	-Attendances
area under a curve	differentiation		denne derivative.	my.com	<ul> <li>Oral questions and Answers</li> </ul>
and the indefinite	5. Define and discuss		2. Assist learners relate		Class Assignment and
integrals of simple	the concept of		slope and tangent lines to	www.mathway.c	• -Class Assignment and Participation
polynomial and	integration		smallness(infinitesimal	<u>om</u>	• Observation
trigonometric	6. Find areas under a		thing)	www.m.quickma	• -Observation
functions.	curve 7 Find indefinite		Discuss	th.com	• -Assignments
	integrals of simple		3. Assist learners discuss the		• -Research
	polynomial and		concept and equation for	www.chegg.com	• -Quiz
	trigonometric		difference quotient .	www.symbolab.c	• -Test
	functions		4. Assist learners use the	om	• -Exams
			tormula to solve		
			Define and discuss	www.cymath.com	
			Denne and thoethop		

	5. Assist learners define and discuss the concept of limits and solve simple problems on polynomial and trigonometric functions.
	6. State the rules of limit and use them to solve basic algebraic problems
	<ul> <li>Define and discuss</li> <li>7. Assist learners define and discuss the concept of differentiation. Use first principle to find the derivatives of simple algebraic functions</li> <li>8. State the rules of differentiation and apply them to simple algebraic and trigonometric functions</li> <li>Discuss</li> </ul>
	<ul> <li>9. Assist learners discuss the concept of summation as it relates to finding the area of a rectangle or a region.</li> <li>10. Define and discuss the concept of integration.</li> <li>11. Define indefinite integrals. Find the indefinite integrals of basic polynomial and trigonometric functions.</li> </ul>