MATHEMATICS

Grade 10

Three-Term Budget Of Work (BOW)
for Learning Competencies

GENERAL MATHEMATICS
Grade 10

Three-Term Budget Of Work
For Learning Competencies

First Term	
Content Standard	The learners should have knowledge and understanding of… • the laws of sines and the laws of cosines • translations, reflections, and rotations, in the Cartesian plane • quadratic inequalities in one variable and in two variables • absolute value equations and inequalities in one variable and their graphs • box-and-whisker plots, and cumulative frequency histograms and polygons • quartiles, deciles, and percentiles; interquartile range, and outliers
Performance Standard	By the end of the term, the learners are able to… • find sides and angles in oblique triangles using the laws of sines and the laws of cosines. • describe translations, reflections, and rotations in the Cartesian plane. • solve and graph the solutions of quadratic inequalities in one variable and in two variables. • solve absolute value equations in one variable and absolute value inequalities in one variable, and graph the solutions. • construct and interpret box-and-whisker plots, and cumulative frequency histograms and polygons. • calculate quartiles, deciles, and percentiles; interquartile range, and outliers.
Week	**Learning Competency**
1	**Measurement and Geometry** • Apply laws of sines in solving oblique triangles, including ambiguous cases.

2	**Measurement and Geometry** • Apply laws of cosines in solving oblique triangles.
3	**Measurement and Geometry** • Describe the position of points in the Cartesian plane. • Describe translations, reflections, and rotations, in the Cartesian plane using coordinates.
4	**Measurement and Geometry** • Solve problems involving laws of sines and cosines, including bearings.
5 to 6	**Number and Algebra** • Illustrate on the number line quadratic inequalities in one variable. • Solve quadratic inequalities in one variable and express solutions in various notations. • Solve problems involving quadratic inequalities in one variable. • Solve quadratic inequalities in two variables.
7	**Number and Algebra** • Determine the region of solutions of a linear or quadratic inequality in two variables. • Solve absolute value equations in one variable and express solutions in various notations).
8	**Number and Algebra** • Solve absolute value inequalities in one variable and express solutions in various notations.
	Data and Probability • Illustrate measures of position (quartiles, deciles, and percentiles).
9	**Data and Probability** • Construct and interpret box-and-whisker plots and cumulative frequency histograms and polygons. • Calculate a specified measure of position, interquartile range, and outliers, from ungrouped data.
10	**Data and Probability**

	• Calculate the percentile rank of a given score from ungrouped data. • Draw conclusions from statistical data using the measures of position.

Second Term	
Content Standard	The learners should have knowledge and understanding of… • radical expressions • the roots of a quadratic equation • quadratic functions • equations reducible to quadratic equations • equation of a circle and the graph of a circle
Performance Standard	By the end of the term, the learners are able to… • simplify, and perform operations, involving radical expressions. • determine the nature of roots of a quadratic equation. • determine the equation of a quadratic function. • solve equations reducible to quadratic equations and radical equations. • transform the equation of a circle from center-radius form to general form, and vice versa, and determine the center and radius from a given equation. • graph a circle from a given equation of the circle.

Week	Learning Competency
1	**Number and Algebra** • Illustrate the laws of rational non-integral exponents. • Simplify radical expressions.
2	**Number and Algebra** • Perform operations involving radical expressions, including rationalizing the denominator.
3 to 4	**Number and Algebra** • Determine the nature of roots of a quadratic equation using the discriminant.

	• Determine the equation of a quadratic function given: a. a table of values b. its graph c. its zeros • Solve equations reducible to quadratic equations, e.g., $y=x^4+5x^2+4=0$.
5	**Number and Algebra** • Solve problems involving quadratic functions.
6	**Number and Algebra** • Solve radical equations, including equations reducible to linear or quadratic equations. • Transform the equation of a circle from center-radius form to general form, and vice versa.
7 to 8	**Number and Algebra** • Determine the center and the radius of a circle from a given equation. • Sketch the graph of a circle given its equation.
9 to 10	**Number and Algebra** • Find the equation of a circle from given conditions, e.g., given two points as the endpoints of a diameter. • Solve problems involving geometric figures on the Cartesian plane.

Third Term	
Content Standard	The learners should have knowledge and understanding of… • evaluation of statistical reports • union and intersection of events, dependent and independent events, and complementary events • simple interest, compound interest, and depreciation • central angles; inscribed angles; and angles and lengths formed by intersecting chords, secants, and tangents of a circle • sectors and segments of a circle, and their areas
Performance Standard	By the end of the term, the learners are able to… • evaluate statistical reports. • calculate probabilities in relation to union and intersection of events; dependent and independent events; and complementary events. • calculate compound interest and depreciation. • apply properties and relationships of central angles, inscribed angles, chords, secants, and tangents of circles. • define sectors and segments of a circle, and find their areas.

Week	Learning Competency
1	**Data and Probability** • Evaluate statistical reports by linking claims to displays, statistics, and representative data. • Illustrate mutually exclusive events and non-mutually exclusive events.
2 to 3	**Data and Probability** • Identify complementary events. • Solve probability problems involving:

	a. union and intersection of events, including mutually and non-mutually exclusive events b. dependent and independent events, including conditional probability where the solution is limited to the use of contingency tables or Venn diagrams c. complementary events
	Number and Algebra • Explore inductively the relationship between simple interest and compound interest.
4	**Number and Algebra** • Calculate compound interest by repeated applications of simple interest. • Solve problems involving compound interest by repeated applications of simple interest.
5	**Number and Algebra** • Explain inductively the formulas for compound interest and depreciation. • Explore inductively the differences in the amount of compound interest obtained on amounts of money invested: a. annually b. quarterly c. monthly
6	**Number and Algebra** • Solve real-life problems involving: a. compound interest b. depreciation
7 to 8	**Measurement and Geometry** • Establish properties and relationships for central angles, inscribed angles, secants, and tangents, of a circle. • Solve problems involving: a. central angles

	b. inscribed angles c. angles formed by two intersecting chords d. angles formed by two secants intersecting outside the circle e. angles formed by two intersecting tangents f. angles formed by intersecting secant and tangent • Establish properties and relationships for chords, secants, and tangents.
9	**Measurement and Geometry** • Solve problems involving lengths of: a. intersecting chords b. two secant segments intersecting outside a circle c. two intersecting tangent segments • Define sectors and segments of a circle and find their areas.
10	**Measurement and Geometry** • Solve problems involving area of a sector of a circle, segment of a circle, and shaded regions in other figures that involve sectors or segments.