GENERAL MATHEMATICS

Grade 11

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

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Three-Term Budget Of Work
For Learning Competencies

First Term	
Content Standard	The learners should have knowledge and understanding of… • business and finance through problems involving earning money, buying, and selling • patterns, arithmetic and geometric sequences and series • financial application of sequence and series • measurement and conversion • functions and its graphs
Performance Standard	By the end of the term, the learners are able to… • Prepare accurate payrolls and digital payslips with correct gross pay, deductions, and net income. • Create and present a digital financial report with graphs, equations, and justified real-life decisions. • Design and present a practical measurement or conversion solution with a concrete or visual model.

Week	Learning Competency
1	**Number and Algebra** • Calculate weekly or monthly wages from an annual salary, wages from an hourly rate, including situations involving overtime and other allowances, and earnings based on commission or piecework. • Solve problems involving salaries, wages, benefits, and deductions (tax computations, overtime pay, and gross and net incomes) using appropriate technology.

2	**Number and Algebra** • Apply a percentage increase or decrease in various contexts: a. determining the impact of inflation on costs and wages over time b. calculating percentage mark-ups and discounts c. calculating VAT d. calculating profit or loss in both absolute and percentage terms • Solve problems involving salaries, wages, benefits, and deductions (tax computations, overtime pay, and gross and net incomes) using appropriate technology.
3	**Number and Algebra** • Describe patterns by inspection, including patterns in art and nature. • Determine the next term of a given pattern, including the Fibonacci sequence. • Identify the rule of a given pattern. • Illustrate the attributes of arithmetic and geometric sequences. • Solve problems involving arithmetic and geometric sequences.
4	**Number and Algebra** • Differentiate sequences from series. • Illustrate arithmetic and geometric series. • Represent series using sigma notation and vice versa. • Find the sum of arithmetic and geometric series. • Solve problems involving arithmetic and geometric series.
5	**Number and Algebra** • Apply sequences and series to solve financial problems, such as periodic payments for loans and mortgages. • Determine the accumulated values of investment over time using sequences and series.
6	**Measurement and Geometry** • Determine and apply the appropriate metric units for various contexts, such as units for small and

	large quantities and scientific measurements. • Convert measurements with different units in the same system and between different systems.
7	**Measurement and Geometry** • Determine the surface area of three-dimensional objects, such as prisms, pyramids, cylinders, cones, spheres, and combinations of these. • Calculate the volume of prisms, pyramids, cylinders, cones, spheres, and combinations of these.
8	**Measurement and Geometry** • Use a scale to interpret and compare distances on maps, blueprints, and sketches. • Solve problems involving the conversion of currencies. • Apply time conversions in various real-world scenarios such as travel planning, project management, and daily routine schedules for personal and business transactions.
9	**Measurement and Geometry** • Apply temperature conversions to real-world scenarios such as recipe adjustments, weather reports, scientific experiments, storage conditions, and energy efficiency.
	Number and Algebra • Classify functions based on their graphs and/or equations to determine if they are linear, absolute value, quadratic, square root, or cube root.
10	**Number and Algebra** • Sketch the graph of the following functions: linear, absolute value, quadratic, square root, or cube root with or without technology. • Apply the functions to model and solve real-life problems.

Second Term	
Content Standard	The learners should have knowledge and understanding of… • piecewise functions • statistical variables • basic trigonometry • practical applications of measurements • random variables and sampling
Performance Standard	By the end of the term, the learners are able to… • model and represent real-world situations using piecewise functions, and solve practical problems while explaining the reasonableness of results. • Collect, analyze, and interpret data to make decisions using spreadsheets, graphs, and statistical visualizations. • Apply trigonometry and geometry to design and construct 3D objects, showing models or prototypes. • Calculate and analyze random variables, normal distributions, and present data with graphs and tables.

Week	Learning Competency
1	**Number and Algebra** • Illustrate a piecewise function in practical contexts (i.e., fare rates, purchasing, and income tax). • Solve practical problems involving piecewise functions.
2	**Data and Probability** • Identify different types of data. • Classify a given set of data according to its level of measurement. • Identify the appropriate measure of central tendency and measures of variability of a given data set for different purposes.

	• Use appropriate technologies (e.g., calculator, Excel, Jamovi, Geogebra, etc.) to calculate measures of central tendency and variability. • Interpret the computed measures of central tendency and variability.
3 to 4	**Measurement and Geometry** • Illustrate the trigonometric ratios in a right-angled triangle using a real-life object or figure. • Solve practical problems involving: a. right and oblique triangles b. angles of elevation and depression c. the use of bearings in navigation • Illustrate the area of oblique triangles (i.e., Heron's Formula and the rule Area=½ abSinC).
5	**Measurement and Geometry** • Estimate and measure lengths and distances (e.g,, floor dimensions, measuring fabric for clothing). • Calculate the area and perimeter of residential spaces (e.g., room renovations, garden layouts).
6	**Measurement and Geometry** • Calculate the volume and capacity of three-dimensional objects (e.g., water tanks, rice storage containers, balik-bayan boxes). • Apply volume and capacity in cost estimation (e.g., amount of flour needed for bread production, paint needed for walls).
7	**Data and Probability** • Differentiate between discrete and continuous random variables and describe their uses. • Calculate the expected value, variance, and standard deviation of discrete random variables.
8	**Data and Probability** • Illustrate a normal random variable and its characteristics. • Convert a normal random variable to a standard normal variable and vice versa.
9	**Data and Probability**

	• Compute probabilities and percentiles involving the standard normal distribution using a Z-distribution table or appropriate technologies. • Solve problems involving normal distribution.
10	**Data and Probability** • Illustrate random sampling. • Determine the appropriate sample size for a specific investigation. • Distinguish between parameter and statistic, and probability and nonprobability sampling techniques.

Third Term	
Content Standard	The learners should have knowledge and understanding of… • compound interest; simple and general annuities; and business and consumer loans • basic concepts of: a. statistical hypothesis testing b. test of difference (parametric or non-parametric) c. test of relationships d. simple linear regression • logical propositions, syllogisms, and fallacies
Performance Standard	By the end of the term, the learners are able to… • Develop and present a digital financial proposal comparing investments with data, graphs, and evidence-based recommendations. • Design, conduct, and present a data investigation applying statistical tests and visualizations to real-life datasets. • Apply logical propositions and fallacies, demonstrating truth values and reasoning through tables, charts, and examples.

Week	Learning Competency
1	**Number and Algebra** • Solve problems involving compound interest, including maturity value, future value, nominal rates, and number of terms.
2	**Number and Algebra** • Illustrate simple annuity, general annuity, and deferred annuity. • Solve problems involving annuities.
3	**Number and Algebra**

	• Calculate the fair market value of a cash flow stream that includes an annuity.
4	**Number and Algebra** • Differentiate between business and consumer loans and their characteristics, such as repayment terms, requirements, purpose, and interest rates. • Solve problems involving business and consumer loans (e.g., amortization, mortgage).
5 to 6	**Data and Probability** • Illustrate: a. null hypothesis b. alternative hypothesis c. level of significance d. types of error • Formulate the null and alternative hypotheses of a given problem. • Determine the: a. level of significance b. types of error appropriate to a given hypothesis • Test hypotheses for one and two population means using technology employing the following statistical tools: a. z-test for known standard deviation b. z-test for unknown standard deviation c. one-sample t-test d. independent samples t-test e. paired samples t-test • Conclude from the results of hypothesis testing on: a. one and two population means using t-test and z-test b. relationship using Pearson r correlations • Construct a scatter plot and estimate the strength of association between variables. • Draw the line of best fit for a scatter plot.

7	**Data and Probability** • Determine the degree of relationship between two variables using Pearson's r correlation. • Conclude from the results of hypothesis testing on: a. one and two population means using t-test and z-test b. relationship using Pearson r correlations
8 to 10	**Number and Algebra** • Identify logical propositions. • Differentiate simple from compound propositions. • Illustrate basic logical operations. • Illustrate the different forms of conditional propositions. • Illustrate different types of tautologies and contradictions using practical situations. • Determine the truth values of propositions in a practical situation.