Republic of the Philippines
Department of Education
CARAGA REGION

November 4, 2022

REGIONAL MEMORANDUM
No. 0969, s. 2022

To: SCHOOLS DIVISION SUPERINTENDENTS
This Region

ASSIGNMENT OF WRITERS FOR THE DEVELOPMENT OF TEACHER RESOURCE PACKAGE FOR NON-MATH MAJORS

1. In reference to Regional Memorandum: Nos. 936 and 897, s. 2022, the field is hereby informed on the Official List of Writers and their assigned Learning Competencies for the Development of Teacher Resource Package for Non-Math Majors. Please see the enclosures for details.

2. All resource materials related to the conduct of the activity can be accessed through the Google Drive folder with URL: https://bit.ly/TRP-NMM.

3. To expedite the completion of the Teacher Resource Package, Division Math Supervisors are assigned to oversee the development and lead in the conduct of Review and Validation in the following strands:

Strand	Division Math Supervisor	Office/Station
Numbers and Number Sense	Lewellyn V. Mejias	Butuan City
	Villaflor D. Edillor	Dinagat Islands
	Florangel S. Arcadio	Siargao
Measurement	Liwayway J. Lubang	Bayugan City
Patterns and Algebra	Lilibeth S. Apat	Agusan del Norte
	Rhodora C. Luga	Bislig City
	Severiano D. Casil	Cabadbaran City
	Noemi D. Lim	Surigao City
Geometry	Nilda A. Mendiola	Tandag City
	Nilo B. Montaño	Agusan del Sur
Statistics and Probability	Manuel L. Limjoco, Jr.	Surigao del Norte
	Regina Euann A. Puerto	Surigao del Sur

4. As provided in the previous issuances, the duration of the development phase which include the writeshop, the conduct of review and validation, and the finalization of the Teacher Resource Package is from October 29-December 10, 2022. To ensure that deliverables are completed within the specified timelines, the Division Math Supervisors assigned per learning strand in coordination with the assigned Team Leaders are requested to set their own schedule within the specified timeframe and accomplish the Tracker at https://bit.ly/TRP-NMMTracker.

Address: J.P. Rosales Avenue,
Butuan City
Trunkline No: (085) 342-8207
Telefax No: (085) 342-5969
Email: caraga@deped.gov.ph

5. For easy tracking and monitoring during the development phase, each team is advised to use the Google Classroom links below:

Strand	Google Classroom Link
Numbers and Number Sense	https://bit.ly/GC_NNS
Measurement	https://bit.ly/GC_Measurement
Patterns and Algebra	https://bit.ly/GC_PA
Geometry	https://bit.ly/GC_Geometry
Statistics and Probability	https://bit.ly/GC_StatProb

Synchronous and asynchronous meetings and conduct of review and validation of the Teacher Resource Package working documents shall be done within the Google Classroom for proper documentation.

6. In compliance with DO 34, s. 2022 and DO 9, s. 2005, all activities shall be done after class periods. Division Math Supervisors of the concerned writers are requested to coordinate with the EPSs-in-Charge of the strand and the Team Leaders for the schedule of activities The schedule of activities for the concerned writers and validators per division shall be articulated in a Division Memorandum to determine the number of service credits to be granted for teaching personnel and Compensatory Time Off for non-teaching personnel.

7. For queries and concerns, please contact Rhea J. Yparraguirre, the Regional Math Focal Person at rhea.yparraguirre@deped.gov.ph.

8. For immediate and widest dissemination to all concerned.

MA. GEMMA MERCADO LEDESMA
Regional Director

Encls.: List of Writers; Tracker
References: As stated
To be indicated in the Perpetual Index
under the following subjects:

LEARNING AREA, MATHEMATICS
REVIEW AND VALIDATION
TEACHERS
TRAINING PROGRAM
WRITESHOP

CLM/rjy
11/03/2022

Enclosure No. 1 to Regional Memorandum No. 969, s. 2022

ASSIGNMENT OF WRITERS FOR THE DEVELOPMENT OF TEACHER RESOURCE PACKAGE FOR NON-MATH MAJORS

A. Numbers and Number Sense

Writer	**Competencies Covered**
Vicky F. Jadol-Agusan del Norte **(Asst. Team Leader)**	1. describes well-defined sets, subsets, universal sets, and the null set and cardinality of sets.
	2. illustrates the union and intersection of sets and the difference of two sets.
	3. uses Venn Diagrams to represent sets, subsets, and set operations.
Princess Beverly V. Pernites- Surigao Del Norte	4. solves problems involving sets.
Keziah Grace B. Presto- Bislig City	5. represents the absolute value of a number on a number line as the distance of a number from 0.
	6. performs fundamental operations on integers.
	7. illustrates the different properties of operations on the set of integers.
Bryan R. Silvoza- Surigao Del Sur	8. expresses rational numbers from fraction form to decimal form and vice versa.
Mary Grace P. Tinambacan- Surigao Del Norte	9. arranges rational numbers on a number line.
Caren L. Alamin, Julie B. Calumba- Dinagat Islands	10. performs operations on rational numbers
Jonas V. Cuevas- Dinagat Islands	11. describes principal roots and tells whether they are rational or irrational.
Lani L. Casis- Bayugan City	12. determines between what two integers the square root of a number is.
Virgelion Cabanesas, PhD.- Agusan del Sur	13. estimates the square root of a whole number to the nearest hundredth.
	14. plots irrational numbers (up to square roots) on a number line.***
	15. illustrates the different subsets of real numbers.

Writer	Competencies Covered
Crisante D. Cresino-Cabadbaran City **(Team Leader)**	16. arranges real numbers in increasing or decreasing order.
Annaliza P. Sangco-Tandag City	17. writes numbers in scientific notation and vice versa.
Niña Mae M. Pangapalan, Bislig City	18. represents real-life situations which involve real numbers.
	19. solves problems involving real numbers.

B. Measurement

Writer	Competencies Covered
Mary Ann P. Saniel, Bayugan City	1. illustrates what it means to measure.
	2. describes the development of measurement from the primitive to the present international system of units.
	3. approximates the measures of quantities particularly length , weight/mass, volume, time, angle and temperature and rate.
	4. converts measurements from one unit to another in both Metric and English systems.***
	5. solves problems involving conversion of units of measurement.***

C. Patterns and Algebra

C.1. Grade 7

Writer	Competencies Covered
Floribelle M. Hladik (SDO Siargao)	1. differentiates between constants and variables in a given algebraic expression.

	2. evaluates algebraic expressions for given values of the variables.
	3. classifies algebraic expressions which are polynomials according to degree and number of terms.
	4. adds and subtracts polynomials.
Juvy Rose T. Amora (SDO Agusan del Norte)	7. derives the laws of exponent.
	8. multiplies and divides polynomials.
	9. uses models and algebraic methods to find the: (a) product of two binomials; (b) product of the sum and difference of two terms; (c) square of a binomial; (d) cube of a binomial; (e) product of a binomial and a trinomial.***
Leonarda B. Lavado (Surigao City)	1. solves problems involving algebraic expressions.
	2. differentiates between algebraic expressions and equations.
	3. translates English sentences to mathematical sentences and vice versa.
Nico Michael De Lara Huelma, SDO Surigao del Sur	1. differentiates between equations and inequalities.
	2. illustrates linear equation and inequality in one variable.
	3. finds the solution of linear equation or inequality in one variable.
	4. solves linear equation or inequality in one variable involving absolute value by: (a) graphing; and (b) algebraic methods.
	5. solves problems involving equations and inequalities in one variable.

C.2. Grade 8

Writer	Competencies Covered
Liza A. Predog (SDO Surigao City)	1. factors completely different types of polynomials (polynomials with common monomial factor, difference of two squares, sum and difference of two cubes, perfect square trinomials, and general trinomials).
	2. solves problems involving factors of polynomials.
Mellanie G. Tuyor (SDO Bislig City) **(Team Leader)**	1. illustrates rational algebraic expressions.
	2. simplifies rational algebraic expressions.
	3. performs operations on rational algebraic expressions.
	4. solves problems involving rational algebraic expressions.
Melvin Rey G. Alim (SDO Agusan del Norte) **(Asst. Team Leader)**	1. illustrates linear equations in two variables.
	2. illustrates the slope of a line.
	3. finds the slope of a line given two points, equation, and graph."
	4. writes the linear equation ax + by = c in the form y = mx + b and vice versa.
Lorna G. Camiguing (SDO Agusan del Sur)	1. graphs a linear equation given (a) any two points; (b) the x – and y – intercepts; (c) the slope and a point on the line.***
	2. describes the graph of a linear equation in terms of its intercepts and slope.***
	3. "finds the equation of a line given (a) two points; (b) the slope and a point; (c) the slope and its intercepts."
	4. solves problems involving linear equations in two variables.

Jenny Pendica-Sularte (SDO Agusan del Sur)	1. illustrates a system of linear equations in two variables.
	2. graphs a system of linear equations in two variables.***
	3. categorizes when a given system of linear equations in two variables has graphs that are parallel, intersecting, and coinciding.
	4. solves a system of linear equations in two variables by (a) graphing; (b) substitution; (c) elimination.***
	5. solves problems involving systems of linear equations in two variables.
Abigail C. Dolon (SDO Surigao del Norte)	1. illustrates linear inequalities in two variables.
	2. differentiates linear inequalities in two variables from linear equations in two variables.
	3. graphs linear inequalities in two variables.
	4. solves problems involving linear inequalities in two variables.
	5. solves a system of linear inequalities in two variables.***
	6. solves problems involving systems of linear inequalities in two variables.
Lucelyn Antipasado (SDO Siargao)	1. illustrates a relation and a function.
	2. verifies if a given relation is a function.
	3. determines dependent and independent variables.
	4. finds the domain and range of a function.
	5. illustrates a linear function.
	6. graphs a linear function's (a) domain; (b) range; (c) table of values; (d) intercepts; and (e) slope.
	7. solves problems involving linear functions.

C.9. Grade 9

Writer	Competencies Covered
Vaneza Joyce B. Leones (SDO Surigao del Norte)	1. illustrates quadratic equations.
	2. solves quadratic equations by: (a) extracting square roots; (b) factoring; (c) completing the square; and (d) using the quadratic formula.
	3. characterizes the roots of a quadratic equation using the discriminant.
	4. describes the relationship between the coefficients and the roots of a quadratic equation.
	5. solves equations transformable to quadratic equations (including rational algebraic equations).
	6. solves problems involving quadratic equations and rational algebraic equations.
Lorna D. Gaballo (SDO Butuan City)	1. illustrates quadratic inequalities
	2. solves quadratic inequalities.
	3. solves problems involving quadratic inequalities.
Jayrold V. Navarra (SDO Dinagat Islands)	1. models real-life situations using quadratic functions.
	2. represents a quadratic function using: (a) table of values; (b) graph; and (c) equation.
	3. transforms the quadratic function defined by y = ax2 + bx + c into the formy = a(x – h)2 + k.
	4. graphs a quadratic function: (a) domain; (b) range; (c) intercepts; (d) axis of symmetry; (e) vertex; (f) direction of the opening of the parabola.

Writer	Competencies Covered
	5. analyzes the effects of changing the values of a, h and k in the equation y = a(x – h)2 + k of a quadratic function on its graph.***
	6. determines the equation of a quadratic function given: (a) a table of values; (b) graph; (c) zeros.
	7. solves problems involving quadratic functions.
Arian Joy G. Haranay (SDO Agusan del Norte)	1. illustrates situations that involve the following variations: (a) direct; (b) inverse; (c) joint; (d) combined.
	2. translates into variation statement a relationship between two quantities given by: (a) a table of values; (b) a mathematical equation; (c) a graph, and vice versa.
	3. solves problems involving variation.
Emalyn C. Cabaltera (SDO Agusan del Norte)	1. applies the laws involving positive integral exponents to zero and negative integral exponents.
	2. illustrates expressions with rational exponents.
	simplifies expressions with rational exponents.
	3. writes expressions with rational exponents as radicals and vice versa.
Lira Gay Baguanga (SDO Surigao del Norte)	1. derives the laws of radicals.
	2. simplifies radical expressions using the laws of radicals.
	3. performs operations on radical expressions.***
	4. solves equations involving radical expressions.***

C.10 Grade 10

Writer	Competencies Covered
Gemma C. Orozco (SDO Surigao City)	1. generates patterns.***
	2. illustrates an arithmetic sequence
	3. determines arithmetic means and nth term of an arithmetic sequence.***
	4. finds the sum of the terms of a given arithmetic sequence.***
Cris Gerom C. Arguilles (SDO Surigao del Norte)	5. illustrates a geometric sequence.
	6. differentiates a geometric sequence from an arithmetic sequence.
	7. differentiates a finite geometric sequence from an infinite geometric sequence.
	8. determines geometric means and nth term of a geometric sequence.***
	9. finds the sum of the terms of a given finite or infinite geometric sequence.***
Kris Jude C. Olayon (SDO Cabadbaran City)	10. illustrates other types of sequences (e.g., harmonic, Fibonacci).
	11. solves problems involving sequences.
	12. performs division of polynomials using long division and synthetic division.
	13. proves the Remainder Theorem and the Factor Theorem.
	14. factors polynomials.
Rubilisa B. Go (SDO Cabadbaran City)	4. illustrates polynomial equations.
	5. proves Rational Root Theorem.
	6. solves polynomial equations.
	7. solves problems involving polynomials and polynomial equations.
	8. illustrates polynomial functions.
	9. graphs polynomial functions.
	10. solves problems involving polynomial functions.

D. Geometry

D.1. Grade 7

Writer	Competencies Covered
Darious F. Pabia, SDO Butuan City	1. represents point, line and plane using concrete and pictorial models.
	2. illustrates subsets of a line.
	3. classifies the different kinds of angles.
	4. derives relationships of geometric figures using measurements and by inductive reasoning; supplementary angles, complementary angles, congruent angles, vertical angles, adjacent angles, linear pairs, perpendicular lines, and parallel lines.***
	5. derives relationships among angles formed by parallel lines cut by a transversal using measurement and by inductive reasoning.
	6. uses a compass and straightedge to bisect line segments and angles and construct perpendiculars and parallels.
	7. illustrates polygons: (a) convexity; (b) angles; and (c) sides.
	8. derives inductively the relationship of exterior and interior angles of a convex polygon.
	9. illustrates a circle and the terms related to it: radius, diameter chord, center, arc, chord, central angle, and inscribed angle.
	10. constructs triangles, squares, rectangles, regular pentagons, and regular hexagons.
	11. solves problems involving sides and angles of a polygon.

D.2. Grade 8

Writer	Competencies Covered
Loven L. Lusica, SDO Butuan City	1. determines the relationship between the hypothesis and the conclusion of an if-then statement.
	2. transforms a statement into an equivalent if-then statement.
	3. determines the inverse, converse, and contrapositive of an if-then statement.
	4. illustrates the equivalences of: (a) the statement and its contrapositive; and (b) the converse and inverse of a statement.
	5. uses inductive or deductive reasoning in an argument.
	6. writes a proof (both direct and indirect).
Vincent Butch Embolode, SDO Bayugan City **(Team Leader)**	7. describes a mathematical system.
	8. illustrates the need for an axiomatic structure of a mathematical system in general, and in Geometry in particular: (a) defined terms; (b) undefined terms; (c) postulates; and (d) theorems.
	9. illustrates triangle congruence.***
	10. illustrates the SAS, ASA and SSS congruence postulates.***
	11. solves corresponding parts of congruent triangles
	12. proves two triangles are congruent.
	13. proves statements on triangle congruence.
	14. applies triangle congruence to construct perpendicular lines and angle bisectors.

Writer	Competencies Covered
Grecila Arguelles , SDO Bayugan City'	15. illustrates theorems on triangle inequalities (Exterior Angle Inequality Theorem, Triangle Inequality Theorem, Hinge Theorem).***
	16. applies theorems on triangle inequalities.
	17. proves inequalities in a triangle.
	18. proves properties of parallel lines cut by a transversal.***
	19. determines the conditions under which lines and segments are parallel or perpendicular.

D.3. Grade 9

Writer	Competencies Covered
Antonio A. Hinayon, SDO Surigao del Sur **(Asst. Team Leader)**	1. identifies quadrilaterals that are parallelograms.
	2. determines the conditions that make a quadrilateral a parallelogram.
	3. uses properties to find measures of angles, sides and other quantities involving parallelograms.
	4. proves theorems on the different kinds of parallelogram (rectangle, rhombus, square).
	5. proves the Midline Theorem.
	6. proves theorems on trapezoids and kites.
	7. solves problems involving parallelograms, trapezoids and kites.
Lee C. Apas, SDO Agusan del Sur	8. describes a proportion.
	9. applies the fundamental theorems of proportionality to solve problems involving proportions.
	10. illustrates similarity of figures.

Writer	Competencies Covered
	11. proves the conditions for similarity of triangles. 11.1 SAS similarity theorem 11.2 SSS similarity theorem 11.3 AA similarity theorem 11.4 right triangle similarity theorem 11.5 special right triangle theorems
	12. applies the theorems to show that given triangles are similar.
	13. proves the Pythagorean Theorem.
	14. solves problems that involve triangle similarity and right triangles.***
Jay Aguhob Balasabas, SDO Bayugan City	15. illustrates the six trigonometric ratios: sine, cosine, tangent, secant, cosecant, and cotangent.
	16. finds the trigonometric ratios of special angles.
	17. illustrates angles of elevation and angles of depression.
	18. uses trigonometric ratios to solve real-life problems involving right triangles. ***
	19. illustrates laws of sines and cosines.
	20. solves problems involving oblique triangles.

D.4. Grade 10

Writer	Competencies Covered
Christian L. Salazar, SDO Tandag City	1. derives inductively the relations among chords, arcs, central angles, and inscribed angles.
	2. proves theorems related to chords, arcs, central angles, and inscribed angles.
	3. illustrates secants, tangents, segments, and sectors of a circle.

Writer	Competencies Covered
	4. proves theorems on secants, tangents, and segments.
	5. solves problems on circles.
	6. derives the distance formula.
	7. applies the distance formula to prove some geometric properties.
	8. illustrates the center-radius form of the equation of a circle.
	9. determines the center and radius of a circle given its equation and vice versa.
	10. graphs a circle and other geometric figures on the coordinate plane.***
	11. solves problems involving geometric figures on the coordinate plane.

E. Statistics and Probability

E.1. Grade 7

Writer	Competencies Covered
Maryann U. Catubigan, SDO Surigao del Norte	1. explains the importance of Statistics.
	2. poses problems that can be solved using Statistics.
	3. formulates simple statistical instruments.
Stella A. Laurencio, SDO Agusan del Sur	4. gathers statistical data.
	5. organizes data in a frequency distribution table.
Kenn Montera, SDO Bayugan City	6. illustrates the measures of central tendency (mean, median, and mode) of a statistical data.
	7. calculates the measures of central tendency of ungrouped and grouped data.
Cezar O. Polistico, SDO Agusan del Norte	8. illustrates the measures of variability (range, average deviation, variance, standard deviation) of a statistical data.
	9. calculates the measures of variability of grouped and ungrouped data.

E.2. Grade 8

Writer	Competencies Covered
Emmanuel Saga, SDO Bayugan City **(Asst. Team Leader)**	1. illustrates an experiment, outcome, sample space and event.***
	2. counts the number of occurrences of an outcome in an experiment: (a) table; (b) tree diagram; (c) systematic listing; and (d) fundamental counting principle.***
	3. finds the probability of a simple event.

E.3. Grade 10

Writer	Competencies Covered
Evelyn Ballenas, SDO Cabadbaran City	1. illustrates the permutation of objects.
	2. derives the formula for finding the number of permutations of n objects taken r at a time.
	3. solves problems involving permutations.
Arnold Abadiano, SDO Agusan del Sur	4. illustrates the combination of objects.
	5. differentiates permutation from combination of n objects taken r at a time.
	6. derives the formula for finding the number of combinations of n objects taken r at a time
	7. solves problems involving permutations and combinations.
Florante Tabodlong, SDO Butuan City	8. illustrates events, and union and intersection of events.
	9. illustrates the probability of a union of two events.
Matt Ranillo S. Paguia, SDO Surigao del Sur	10. finds the probability of (A È B).
	11. illustrates mutually exclusive events.
	12. solves problems involving probability.

Writer	Competencies Covered
Ella Mae V. Pasuhil-Betito, SDO Tandag City	13. illustrates the following measures of position: quartiles, deciles and percentiles.***
	14. calculates a specified measure of position (e.g. 90th percentile) of a set of data.
Jose Mari Raza, SDO Siargao	15. interprets measures of position.
	16. solves problems involving measures of position.
Dante Sabayday, SDO Butuan City **(Team Leader)**	17. formulates statistical mini-research.
	18. uses appropriate measures of position and other statistical methods in analyzing and interpreting research data.

Enclosure 2 to Regional Memorandum No. ___, s. 2022

Tracker on the Development and Quality Assurance of Teacher Resource Package for Non-Math Majors
(To be accomplished by the Division EPS-in-Charge of the Strand and the Team Leader)
(Editable File is accessible at https://bit.ly/TRP-NMMTracker)

Strand/Grade Level	Division Math Supervisors In-Charge and Contact Details	Writer	Competencies Covered	STATUS															Summary of Issues/Challenges during the Development and Review/Validation Phase
				Submitted the First Draft of the Teacher Resource	Date	Review and Validation by the Division Math Focal Persons	Date Completed	Revision by the Assigned Writer	Date Completed	Review and Validation of the Revised TRP by the	Date Completed	Final Review by the Regional Math Focal	Date Completed	For Finalization by the Writer	Date Completed	Ready-to-Use/ Ready-to-Print	Date Completed	Uploaded to Google Drive	Date	