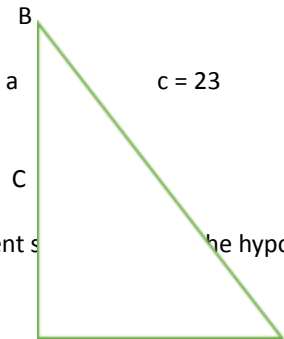
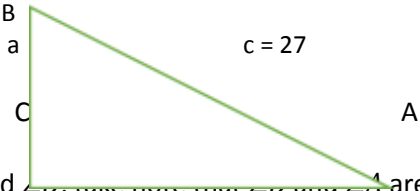
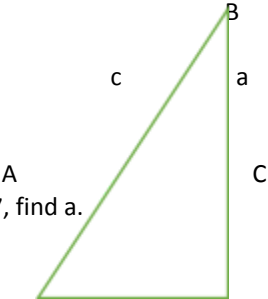
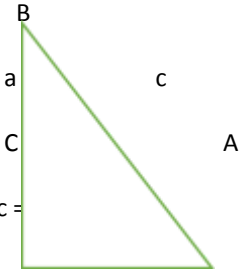


DAILY LESSON LOG OF M9GE-IVa-1 (Day Three)

School		Grade Level	Grade 9						
Teacher		Learning Area	Mathematics						
Teaching Date and Time		Quarter	Fourth						
I. OBJECTIVES	Objectives must be met over the week and connected to the curriculum standards. To meet the objectives, necessary procedures must be followed and if needed, additional lessons, exercises and remedial activities may be done for developing content knowledge and competencies. These are assessed using Formative Assessment Strategies. Valuing objectives support the learning of content and competencies and enable children to find significance and joy in learning the lessons. Weekly objectives shall be derived from the curriculum guides.								
A. Content Standards	The learner demonstrates understanding of key concepts of polynomial functions.								
B. Performance Standards	The learner is able to conduct systematically a mathematical investigation involving polynomial functions in different fields.								
C. Learning Competencies/ Objectives	Learning Competency: Illustrates the six trigonometric ratios: sine, cosine, tangent, cosecant, secant, and cotangent. M9GE-IV-a-1 Learning Objectives: 1. Recall the use of scientific calculators in evaluating trigonometric ratios. 2. Solve for the missing parts of a right triangle given the measure of the two parts; the length of the hypotenuse and the length of one leg. 3. Solve for the missing parts of a right triangle given the length of the hypotenuse and the measure of one acute angle. 4. Display accuracy in solving for the missing parts of a right triangle.								
II. CONTENT	Illustrating the six trigonometric ratios: sine, cosine, tangent, cosecant, secant, and cotangent.								
III. LEARNING RESOURCES									
A. References									
1. Teacher’s Guide									
2. Learner’s Materials	Pages 430-446								
3. Textbook pages									
4. Additional Materials from Learning Resource (LR) portal									
B. Other Learning Resources									
IV. PROCEDURES	These steps should be done across the week. Spread out the activities appropriately so that pupils/students will learn well. Always be guided by demonstration of learning by the pupils/ students which you can infer from formative assessment activities. Sustain learning systematically by providing pupils/students with multiple ways to learn new things, practice the learning, question their learning processes, and draw conclusions about what they learned in relation to their life experiences and previous knowledge. Indicate the time allotment for each step.								
A. Review previous lesson or presenting the new lesson	The teacher lets the students match the name of each trigonometric ratio in column A with the correct ratio of the side lengths of a right triangle in column B. Write the letter of the correct answer in the blank provided. <table><tr><td>A</td><td>B</td></tr><tr><td>_____ 1. cosine</td><td>a. $\frac{\text{hypotenuse}}{\text{adjacent}}$</td></tr><tr><td>_____ 2. sine</td><td>b. $\frac{\text{hypoetnuse}}{\text{opposite}}$</td></tr></table>			A	B	_____ 1. cosine	a. $\frac{\text{hypotenuse}}{\text{adjacent}}$	_____ 2. sine	b. $\frac{\text{hypoetnuse}}{\text{opposite}}$
A	B								
_____ 1. cosine	a. $\frac{\text{hypotenuse}}{\text{adjacent}}$								
_____ 2. sine	b. $\frac{\text{hypoetnuse}}{\text{opposite}}$								

	_____ 3. secant _____ 4. tangent _____ 5. cotangent _____ 6. cosecant c. $\frac{\text{adjacent}}{\text{opposite}}$ d. $\frac{\text{opposite}}{\text{adjacent}}$ e. $\frac{\text{opposite}}{\text{hypotenuse}}$ f. $\frac{\text{adjacent}}{\text{hypotenuse}}$ Answer Key: 1. f 2. e 3. a 4. d 5. c 6. b
B. Establishing a purpose for the lesson	The teacher lets the students realize that recognizing what trigonometric ratio to use is helpful in solving for the unknown quantities of a right triangle. The teacher emphasizes that solving a right triangle means finding the measure of the remaining parts.
C. Presenting examples/ instances of the new lesson	The teacher lets the students, in groups of three, do the following activity. Triangle BCA is right angled at C. If $c = 23$ and $b = 17$, find $\angle A$, $\angle B$ and a . Express your answers up to two decimal places.
D. Discussing new concepts and practicing new skills #1	The teacher discusses with the students the process of arriving at the answer of the activity. Solution:  Side b is the adjacent side to $\angle A$ and the hypotenuse of right triangle BCA. Use CAH, that is $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\cos A = \frac{b}{c}$ $\cos A = \frac{17}{23}$ $\cos A = 0.7391$ We can use the scientific calculator to find an angle whose cosine value is 0.7391 and we have $A = 42.34^\circ$. Since $\angle A = 42.34^\circ$, then $\angle B = 90^\circ - 42.34^\circ$. Thus, $\angle B = 47.66^\circ$. Using the Pythagorean Theorem: $a^2 + b^2 = c^2$ $a^2 + (17)^2 = (23)^2$ $a^2 + 289 = 529$ $a^2 = 529 - 289$

	$\sqrt{a} = \sqrt{240}$ $a = 15.49$
E. Discussing new concepts and practicing new skills #2	The teacher presents the following illustrative example. Given right $\triangle BCA$ with right angle at C. If $c = 27$ and $\angle A = 58^\circ$, find $\angle B$, b, and a.  To find $\angle B$, take note that $\angle B$ and $\angle A$ are complementary angles. Then, $\angle B + \angle A = 90^\circ$ $\angle B = 90^\circ - 58^\circ$ $\angle B = 32^\circ$ The teacher lets the students, in pairs, do the next activity. The teacher will ask the following question: “What trigonometric ratio are we going to use given that b is the adjacent side of $\angle A$ and c is the hypotenuse of the $\triangle ABC$?” Answer: $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\cos A = \frac{b}{c}$ $\cos 58^\circ = \frac{b}{27}$ $b = 27 \cos 58^\circ$ $b = 27 (0.5299)$ $b = 14.31$
F. Developing mastery (leads to formative assessment 3)	Working in pairs, the teacher will ask the students to think of the appropriate trigonometric ratio needed to solve for side a. Answer: $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$ $\sin A = \frac{a}{c}$ $\sin 58^\circ = \frac{a}{27}$ $a = 27 \sin 58^\circ$ $a = 27 (0.8480)$ $a = 22.9$

G. Finding practical applications of concepts and skills in daily living	
H. Making generalizations and abstractions about the lesson	The teacher summarizes the mathematical skills or principles used to solve for the missing side of a right triangle by asking the question: What mathematical principles do you need to remember in solving for the missing side of a right triangle? Answers shall be drawn from the students. Answer: It is important to always remember the six trigonometric ratios namely: sine, cosine, tangent, cosecant, secant, and cotangent.
I. Evaluating Learning	The teacher lets the students individually answer the formative assessment. I. Using the figure below, write expression that gives the required unknown value.  If $\angle A = 15^\circ$ and $c = 37$, find a. Solution: $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$ $\sin \angle A = \frac{a}{c}$ $\sin 15^\circ = \frac{a}{37}$ $a = 37 \sin 15^\circ$ $a = 9.58$ II. Use the given figure to solve the remaining parts of right triangle ABC.  1. $a = 7$ cm and $c = 16$ cm Solution: $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$ $\sin A = \frac{a}{c}$ $\sin A = \frac{7}{16}$ $\sin A = 0.4375$ Using the scientific calculator, we have $\angle A = 25.94^\circ$. Since $\angle A = 25.94^\circ$, we have $\angle B = 90^\circ - 25.94^\circ = 64.06^\circ$. Using the Pythagorean Theorem, we have: $a^2 + b^2 = c^2$ $(7)^2 + (b)^2 = (16)^2$ $49 + (b)^2 = 256$

	$b^2 = 256 - 49$ $b^2 = 207$ $\sqrt{b^2} = \sqrt{207}$ $b = 14.39 \text{ cm}$
J. Additional activities or remediation	
V. REMARKS	
VI. REFLECTION	<i>Reflect on your teaching and assess yourself as a teacher. Think about your students' progress. What works? What else needs to be done to help the pupils/students learn? Identify what help your instructional supervisors can provide for you so when you meet them, you can ask them relevant questions.</i>
A. No. of learners who earned 80% of the evaluation	
B. No. of learners who require additional activities for remediation who scored below 80%	
C. Did the remedial lesson work? No. of learners who have caught up with the lesson.	
D. No. of learners who continue to require remediation	
E. Which of my teaching strategies worked well? Why did these work?	
F. What difficulties did I encounter which my principal or supervisor can help me solve?	
G. What innovation or localized materials did I use/ discover which I wish to share with other teachers	

Prepared by:

JAIME P. RUELAN, Ed. D.

EPS in MATH