ALBERTA DISTANCE LEARNING CENTRE
Mathematics 30-1
MAT3791
Workbook 2.2

Student's Questions and Comments

FOR STUDENT USE ONLY

Student Name:

_____

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Assigned to

_____

Marked by

_____

Date received

_____

Summary

	Marks Earned	Total Marks	Percent
Practice 2.2A	**I have ___ /8 and ___%**		
Practice 2.2B	**I have ___ /8 and ___%**		
Explore Your Understanding 2.2			

Teacher's Comments:

_____

Teacher's Signature

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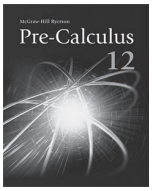


Pre-Calculus 12

Explore Your Understanding Assignment 2.2

This assignment includes 16 marks. You are expected to complete **14 marks** worth of work. If you complete more than this, all completed questions will be used to assign a grade. For example, if you complete all 16 marks worth of work, your assignment total will be 16 instead of 14. You can also complete a question and label it "DO NOT MARK" if you are not confident in your work. Your teacher will then give feedback on your response, which will help clarify any misconceptions, but will not count it towards your required mark total. Please contact your teacher if you have any questions.

1. Evaluate the following expressions.

(1) a. $\sec 241^\circ$ (approximately)

(1) b. $\sin\frac{5\pi}{4}$ (exactly)

2. Given $\csc\theta = \frac{2\sqrt{3}}{3}$ and $-270^\circ < \theta < 180^\circ$,

(1) a. Determine the possible values of θ.

(1) b. Determine the possible points where the terminal arm of θ, in standard position, intersects the unit circle.

(1) c. Determine the exact values of $\cos\theta$ and $\tan\theta$.

3.

(2) a. Solve $6\cos\theta\sin\theta - 2\cos\theta = 0, 0 < \theta < 2\pi$.

(1) b. Give the general solution to $6\cos\theta\sin\theta - 2\cos\theta = 0$.

(2) 4. Maika has solved $\sin^2 x = \sin x$ as follows.

$$\sin^2 x = \sin x$$
$$\frac{\sin^2 x}{\sin x} = \frac{\sin x}{\sin x}$$
$$\sin x = 1$$
$$x = \frac{\pi}{2} + 2n\pi, n \in \mathrm{I}$$

Evaluate Maika's solution.

5. The $\sin^{-1}$ and $\cos^{-1}$ commands on a calculator are used to solve for unknown angle measures when the trigonometric ratios are known. For some ratios, the calculator outputs correspond to quadrant I angles, while for other ratios, the calculator outputs correspond to angles in other quadrants.

(1) a. i. Use a calculator to complete the table. Try a few of your own a-values as well. Notice that a must be between -1 and 1.

a	Calculator output for $\sin^{-1}a$
1	
0.5	
0	
-0.5	
-1	

ii. Describe a rule that predicts which quadrant the calculator output of $\sin^{-1}a$ will lie in given an a-value.

(1) b. i. Use a calculator to complete the table. Try a few of you own b-values as well.

b	Calculator output for $\cos^{-1} b$
1	
0.5	
0	
-0.5	
-1	

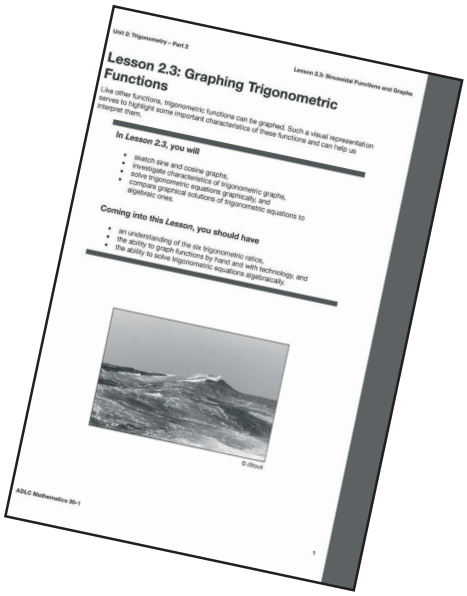
ii. Describe a rule that predicts which quadrant the calculator output of $\cos^{-1} b$ will lie in given a b-value.

(1) c. For what values of a and b do the θ-values given by a calculator correspond to reference angles?

(1) d. Give equations that can be used to determine the reference angle if the angle given by a calculator is not a reference angle. (Hint: A different equation is required for each applicable quadrant.)

(2) 6. Given $\csc\theta = \frac{5}{4}$, determine $\tan\theta$ if $\frac{\pi}{2} \leq \theta \leq \pi$.

When this workbook is complete, submit it using a method described at the beginning of this *Workbook*. Next, complete *Test Your Understanding Quiz 2.2* online in Moodle. When complete, return to the *Module* and begin *Lesson 2.3.*


Unit 3: Trigonometry – Part 2

Lesson 2.3: Sinusoidal Functions and Graphs

Lesson 2.3: Graphing Trigonometric Functions

Like other functions, trigonometric functions can be graphed. Such a visual representation serves to highlight some important characteristics of these functions and can help us interpret them.

In *Lesson 2.3*, you will

- sketch sine and cosine graphs,
- investigate characteristics of trigonometric graphs,
- solve trigonometric equations graphically, and
- compare graphical solutions of trigonometric equations to algebraic ones.

Coming into this *Lesson*, you should have

- an understanding of the six trigonometric ratios,
- the ability to graph functions by hand and with technology, and
- the ability to solve trigonometric equations algebraically.

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ADLC Mathematics 30-1

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