

## Unit 5 Evaluation: Trigonometric Functions

Max Marks: 24

Name: \_\_\_\_\_

**Part A: Short Answer.**

1. Evaluate. Include the Reference Triangle in your response.

a)  $\cos 120^\circ$

b)  $\tan 315^\circ$

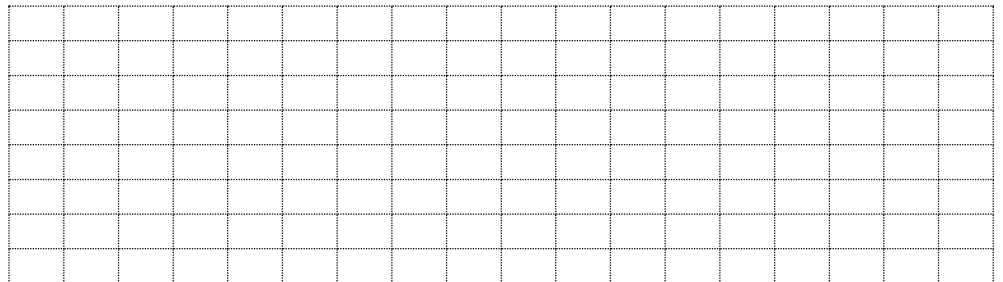
c)  $\sin \frac{5\pi}{4}$

d)  $\csc \frac{\pi}{3}$

e)  $\cot 2\pi$  [5]

2. a) Convert  $210^\circ$  to radians.

b) Convert 1.8 radians to degrees. [2]

**Part B: Extended Response.** Answer questions on separate paper. Marks earned for steps shown.1. Graph at least one period.  $y = \frac{1}{2} \cos(x - \frac{5\pi}{6}) - 2$ . [4]2. Solve for  $\theta$ ,  $0 \leq \theta \leq 2\pi$ .

a)  $2 \sin \theta + \sqrt{3} = 0$ .

b)  $3 \cos^2 \theta - 5 \cos \theta - 2 = 0$ . [6]

3. Low tide in a harbour is at 3:06 a.m. and occurs again 12.4 hours later. If the depth of the water at high tide is 8 meters, and low tide water depth is 2 meters,

a) Graph at least one period of the sinusoidal function. [7]

b) Write an equation that represents the depth of the water in the harbour at  $t$  hours.

c) What is the water depth at midnight?

**Bonus<sub>1</sub>:** Type/Write out a unique math joke that involves trigonometry. [+1]**Bonus<sub>2</sub>:** For question Part B #3 above, find one time when the water depth is 3 meters. [+1]

**My signature indicates that my assignment responses were independently written by me.**

\_\_\_\_\_  
Name\_\_\_\_\_  
Signature\_\_\_\_\_  
Date