

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

Date: \_\_\_\_\_

## Chapter 4 Review

For each type of question, the achievement level is indicated. Showing work is an important strategy in communicating your knowledge and ideas so please be thorough.

<b>Learning Goal 4.1</b>	Examining angles in standard position in both radians and degrees. Exploring the unit circle, reference and coterminal angles and special angles.
--------------------------	---

<b>Developing</b>		
1. Convert to radians, leave your answer as an exact value in lowest terms.		
a. $60^\circ$	b. $150^\circ$	c. $570^\circ$
d. $-225^\circ$	e. $680^\circ$	f. $-450^\circ$
2. Convert to degrees, round your answer to the nearest degree.		
a. $\frac{7\pi}{4}$	b. $\frac{10\pi}{3}$	c. $\frac{5\pi}{6}$
d. 30	e. $\frac{-2\pi}{7}$	f. -1
3. Find the reference angle of each angle and sketch the angle in standard position. Write a general formula for coterminal angles.		
a. $280^\circ$	b. $88^\circ$	c. $191^\circ$
d. $-\frac{5\pi}{6}$	e. $\frac{9\pi}{4}$	f. $\frac{8\pi}{3}$

<b>Proficient</b>		
4. Determine the arc length subtended by each central angle. Give answers to the nearest hundredth of a unit.		
a. $r = 20 \text{ cm}, \theta = \frac{2\pi}{3}$	b. $r = 15 \text{ mm}, \theta = 195^\circ$	c. $r = 12 \text{ m}, \theta = -\frac{3\pi}{4}$
5. Determine the area of the sector subtended by each central angle. Give answers to the nearest tenth of a square unit.		
a. $r = 20 \text{ cm}, \theta = \frac{2\pi}{3}$	b. $r = 15 \text{ mm}, \theta = 195^\circ$	c. $r = 12 \text{ m}, \theta = -\frac{3\pi}{4}$

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

Date: \_\_\_\_\_

## Chapter 4 Review

Proficient		
6. Determine the exact values of the following trigonometric ratios. Include a diagram with your solution.		
a. $\cos 330^\circ$	b. $\sin 240^\circ$	c. $\tan 135^\circ$
d. $\cot(-120^\circ)$	e. $\csc(-330^\circ)$	f. $\sec 315^\circ$
g. $\cos\left(-\frac{5\pi}{3}\right)$	h. $\sin\left(\frac{5\pi}{4}\right)$	i. $\tan\left(\frac{5\pi}{6}\right)$
j. $\sec\left(\frac{\pi}{6}\right)$	k. $\cot\left(-\frac{4\pi}{3}\right)$	l. $\csc\left(\frac{15\pi}{4}\right)$

Extending		
7. Given the following information, find the exact value of the other five trigonometric ratios.		
a. $\cos \theta = -\frac{1}{4} \quad \theta \in III$	b. $\tan \theta = -\frac{3}{7} \quad \theta \in II$	c. $\sin \theta = -\frac{3}{4} \quad \theta \in IV$
d. $\sec \theta = \frac{3}{2} \quad \theta \in I$	e. $\cot \theta = \frac{3}{8} \quad \theta \in III$	f. $\csc \theta = \frac{4}{3} \quad \theta \in II$
g. $\sin \theta = -\frac{12}{13} \quad \cos \theta > 0$	h. $\csc \theta = 3 \quad \tan \theta < 0$	i. $\cot \theta = -\frac{3}{4} \quad \sin \theta < 0$
8. For the following coordinates on the terminal arm of an angle $\theta$ , find the exact value of all six trigonometric ratios		
a. $A(4, 7)$	b. $J(-8, -3)$	c. $C(5, -8)$
d. $D(-4, 8)$	e. $F(-2, 4)$	f. $G(-9, 3)$

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

Date: \_\_\_\_\_

## Chapter 4 Review

For each type of question, the achievement level is indicated. Showing work is an important strategy in communicating your knowledge and ideas so please be thorough.

**Learning Goal 4.2**

Solving first- and second-degree equations over restricted domains and all real numbers.

1. Solve the following trigonometric equation on the specified domain for exact value(s) of  $\theta$ , where possible. Otherwise round your answers to the nearest hundredth.

**Proficient**

a.  $4 \csc \theta - 5 = 3$   
 $0 \leq \theta < 360$

b.  $-3(5 - 4 \sec \theta) = \sec \theta$   
 $0 \leq \theta < 2\pi$

c.  $\csc \theta + \frac{3}{4} = -\frac{2}{3}$   
 $0 \leq \theta < 360$

d.  $\sec \theta + 10 = 2 - 4 \sec \theta$   
 $-\pi \leq \theta < \pi$

e.  $\sin \theta = \sqrt{3} - \sin \theta$   
 $0 \leq \theta < 2\pi$

f.  $1 + \cos \theta = 1 - \cos \theta$   
 $-360 \leq \theta < 0$

g.  $\tan \theta = \sqrt{3} - 2 \tan \theta$   
 $-\pi \leq \theta < \pi$

h.  $\sqrt{3} \sec \theta - 2 = 0$   
 $0 \leq \theta < 2\pi$

i.  $7 \cot \theta = \sqrt{3} + 5 \cot \theta$   
 $-360 \leq \theta < 0$

**Extending**

j.  $2 \sin^2 \theta = 1$   
 $0 \leq \theta < 2\pi$

k.  $\tan^2 \theta - 4 \tan \theta + 3 = 0$   
 $0 \leq \theta < 2\pi$

l.  $\tan^2 \theta - 3 \tan \theta = 0$   
 $0 \leq \theta < 2\pi$

m.  $2 \sin^2 \theta + \sin \theta = 1$   
 $-2\pi \leq \theta < 0$

n.  $2 \cos^2 \theta + \cos \theta - 1 = 0$   
 $0 \leq \theta < 2\pi$

o.  $\csc^2 \theta + 5 \csc \theta + 6 = 0$   
 $-\pi \leq \theta < \pi$

p.  $2 \cos^2 \theta + 3 \cos \theta + 1 = 0$   
 $0 \leq \theta < 2\pi$

q.  $4 \sin^2 \theta - 1 = 0$   
 $0 \leq \theta < 2\pi$

r.  $\sec^2 \theta + 3 \sec \theta = -2$   
 $0 \leq \theta < 2\pi$