## Chapter 4 Review

To be completed on a separate piece(s) of paper. Show all of your work.

1. Draw each angle in standard position. Convert each degree measure to radian measure and each radian measure to degree measure. Give answers are exact values (no decimal places).
a) $\frac{5 \pi}{2}$
b) $240^{\circ}$
2. Convert each degree measure to radian measure and each radian measure to degree measure. Give answers as approximate values to the nearest hundredth, if necessary. (calculator permitted)
a) $185^{\circ}$
b) $\frac{3 \pi}{10}$
3. Determine the measure of one positive and one negative angle coterminal with each angle in the domain $0^{\circ} \leq \theta<360^{\circ}$ or $0 \leq \theta<2 \pi$. Express each an angle in general form. Draw a diagram showing the quadrant in which each angle terminates.
a) 6.75
b) $400^{\circ}$
c) $\frac{5 \pi}{2}$
4. $P(\theta)=(x, y)$ is the point where the terminal arm of an angle $\theta$ in standard position intersects the unit circle. What are the exact coordinates for each point? Draw each angle.
a) $P\left(\frac{5 \pi}{6}\right)$
b) $P\left(-150^{\circ}\right)$
c) $P\left(-\frac{11 \pi}{2}\right)$
d) $P\left(120^{\circ}\right)$
5. Determine the values of angle $\theta$ in standard position, $0 \leq \theta<2 \pi$ given the coordinates of the point $P$.
a) $P(\theta)=\left(\frac{\sqrt{3}}{2},-\frac{1}{2}\right)$
b) $P(\theta)=\left(-\frac{1}{\sqrt{2}}, \frac{1}{\sqrt{2}}\right)$
6. Determine the values of angle $\theta$ in standard position, $0^{\circ} \leq \theta<360^{\circ}$ given the coordinates of the point $P$.
a) $P(\theta)=\left(-\frac{\sqrt{3}}{2},-\frac{1}{2}\right)$
b) $P(\theta)=\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$
7. If $\cos \theta=\frac{1}{3}, 0^{\circ} \leq \theta<270^{\circ}$, what is the exact value of each of the other trigonometric ratios of $\theta$ ?
8. Determine the exact value of each trigonometric ratio.
a) $\sin \left(-\frac{3 \pi}{2}\right)$
b) $\cos \frac{3 \pi}{4}$
c) $\cot \frac{7 \pi}{6}$
d) $\sec \left(-210^{\circ}\right)$
e) $\tan 720^{\circ}$
f) $\csc 300^{\circ}$
9. The terminal arm of an angle $\theta$ in standard position passes through the point $A(-3,6)$. Find the value of all six trig ratios.
10. Determine the exact roots for each trigonometric equation.
a) $\csc \theta=\sqrt{2} ;\left[0,360^{\circ}\right)$
b) $2 \cos \theta+1=0 ; 0 \leq \theta<2 \pi$
c) $\sqrt{3} \tan \theta-1=0 ;-180^{\circ} \leq \theta<360^{\circ}$
d) $\cot \theta+1=0 ;-\pi \leq \theta<\pi$
11. Solve for $\theta$. Give solutions as exact values where possible. Otherwise, give approximate measures, to the nearest thousandth.
a) $\sin ^{2} \theta+\sin \theta-2=0 ; 0 \leq \theta<2 \pi$
b) $\tan ^{2} \theta+3 \tan \theta=0 ; 0^{\circ} \leq \theta<360^{\circ}$
c) $6 \cos ^{2} \theta+\cos \theta=1 ;\left[0,360^{\circ}\right)$
d) $\sec ^{2} \theta-4=0 ;[-\pi, \pi]$
12. Determine each general solution using the angle measure specified.
a) $\sin \theta=-\frac{1}{2}$; in radians
b) $\sin \theta=\sin ^{2} \theta$; in degrees
c) $\sec \theta+2=0$; in degrees
d) $(\tan \theta-1)(\tan \theta-\sqrt{3})=0$; in radians
