Name:_____ Date:_____

HW Pre Calculus 12 Section 4.1 Radians and Angles in Standard Position:

1. What does it mean when an angle is in standard position? Explain:

2. What is a radian? Define it. Explain why radians are used instead of angles

3. How would you convert an angle from degrees to radians? Radians to degrees?

4. When converting an angle from degrees to radians, how do we determine if we can write it in radians as a fraction in terms of π? Explain:

5. What is the ratio of an arc length over the circumference versus the ratio of a sector over the area of a circle? Explain. What other ratios is this also equal to?

6. What are coterminal angles? How do you check if two angles are coterminal? Explain?

7. What does it mean to find the general formula of a coterminal angle?

8. Convert the following angles in degrees to radians:

a) 125°	b) 237°	c) 148°	d) 217°

9. Convert the following angles in Degrees to Radians. Write your answer as a fractions in terms of π:

a) 60°	b) 30°	c) 150°	d) 210°
e) 90°	f) 135°	g) 225°	h) 240°
i) 315°	j) 360°	k) 330°	l) 1050°

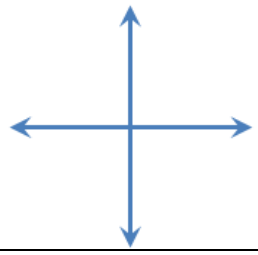
10. Convert the following angles in Radians to Degrees:

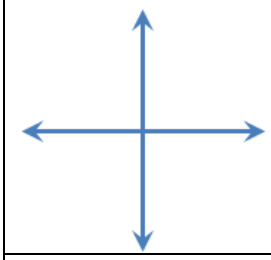
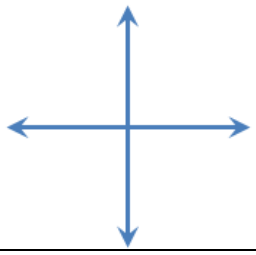
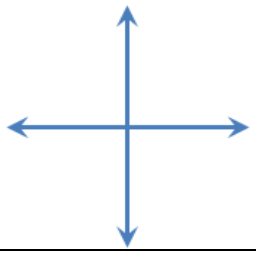
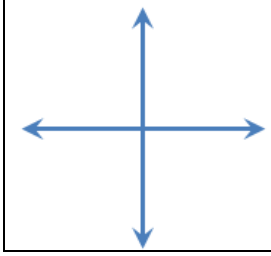
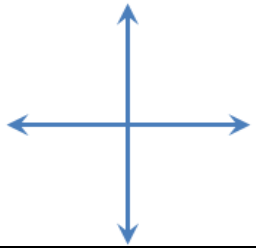
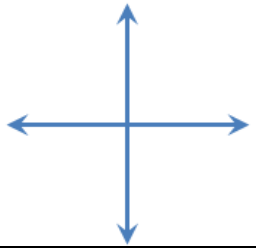
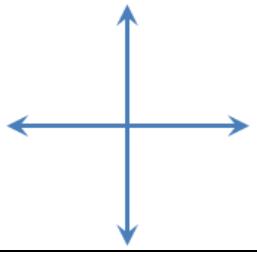
a) $\frac{2\pi}{3}$	b) $\frac{2\pi}{6}$	c) $\frac{2\pi}{4}$	d) $\frac{5\pi}{3}$
e) $\frac{16\pi}{12}$	f) $\frac{11\pi}{3}$	g) $\frac{7\pi}{6}$	h) $\frac{15\pi}{4}$
i) $\frac{\pi}{12}$	j) $\frac{5\pi}{6}$	k) $\frac{3\pi}{20}$	l) $\frac{22\pi}{9}$

11. Convert the following angles in Radians to Degrees:

a) 1.60^R	b) 20.5^R	c) $-1.3333....^R$	d) -18.25^R

12. Draw the following angles given in radians in standard position.

a) $\frac{2\pi}{3}$	b) $-\frac{10\pi}{6}$	c) $\frac{15\pi}{4}$	d) 14.25^R 

			
e) $-\frac{3\pi}{7}$ 	f) $\frac{18\pi}{5}$ 	g) $\frac{13\pi}{3}$ 	h) -22.56^{R} 

13. Suppose angles "A" and "B" are coterminal, indicate which of the statements below are true. Explain:

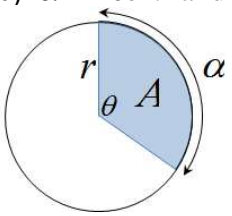
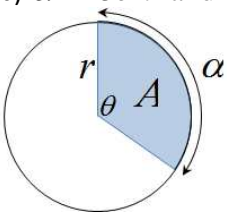
a) $\sin A = \sin B$	b) $\tan A = \tan B$	c) $\sin A = \cos B$
d) $A = B + 90°$	e) $A = B \pm 360°(n)$	f) $A + B = 360°$
g) $\frac{A-B}{360°} = N;\ \ N \in 1,2,3,.....$	h) $\frac{A+B}{360°} = N;\ \ N \in 1,2,3,.....$	i) $\sin^2 A + \sin^2 B = 1$

14. Determine whether if each pair of angles given are coterminal. Justify your answer. If the pair of angles are coterminal, find a general formula for all the other coterminal angles:

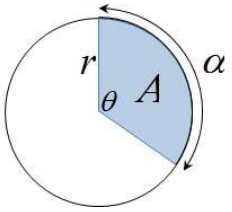
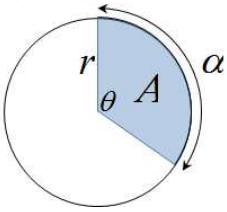
a) $65°$ & $425°$	b) $\frac{4\pi}{3}$ & $\frac{10\pi}{3}$	c) $\frac{7\pi}{4}$ & $\frac{17\pi}{4}$

d) $\frac{18\pi}{5}$ & $\frac{78\pi}{5}$	e) $\frac{-12\pi}{7}$ & $\frac{196\pi}{7}$	f) $\frac{-1002\pi}{6}$ & $\frac{1000\pi}{3}$

15. Given each circle with the arc length, find the central angle in both degrees and radians, and also the area of the sector

a) $\alpha = 20cm$ and $r = 10cm$ $A = ?$ $\theta = ?$ 	b) $\alpha = 15cm$ and $r = 15cm$ $A = ?$ $\theta = ?$ 

16. Given each circle with the area of the sector, find the central angle in both degrees and radians, and also the length of the arc:

a) $A = 14cm^2$ $r = 8cm$ $\theta = ?$ $\alpha = ?$ 	b) $A = 25m^2$ $r = 485cm$ $\theta = ?$ $\alpha = ?$ 

17. What is the angle of a terminal term that has rotates CCW, went past the initial arm 17 times, and is pointing up? Provide your answer in radians as a fraction in terms of π.