Pre-Calculus Name: _____

Area of Sector and Angular/linear Velocity

Given the measure of the angle, find the arc length.

1. $\frac{2\pi}{3}$, r = 4 2. $\frac{5\pi}{12}$, r = 5 3. 150°, r = 15 4. 320°, r = 19

Find the area of the sector.

5. $\theta = \frac{5\pi}{12}$, $r = 10$ 6. $\theta = 90^{\circ}$, $r = 22$ 7. $\theta = 225^{\circ}$ $r = 7.3$

8. A sector has arc length of 6 feet and central angle of 1.2 radians.

a. Find the radius of the circle.

b. find the area of the sector.

Determine the angular velocity

9. 1.8 revolutions in 9 seconds

10. 2.7 revolutions in 3 minutes

11. 28.4 revolutions in 19 seconds

12. 122.6 revolutions in 27 minutes

Determine the linear velocity

13. 16.6 radians per second, r = 8 centimeter

14. 27.4 radians per second , r = 4 feet

15. 73. 5 radians per second , r = 17 inches

16. 64.5 radians per minute, r = 88.9 millimeters

17. A pulley is turned 120^{o} per second.

a. Find the number of revolutions per minute (rpm)

b. If the radius is of the pulley is 5 inches, find the linear velocity in inches per second.