Fall 2023 Math 130 Geometry Worksheet

Circles

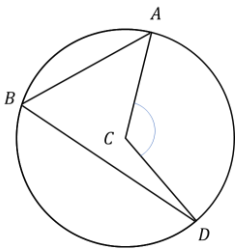
1. Convert the angle measure to decimal degrees. Round to four decimal places.

   a) $77°44'22''$ b) $12°34'56''$

2. Convert the angle measure to degrees, minutes, and seconds. Round to the nearest second.

   a) $77.442°$ b) $12.345°$

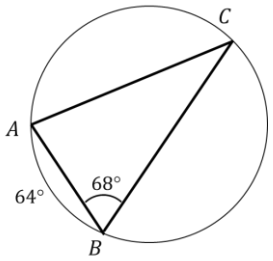
3. Find the measure in degrees of $\angle ABD$ and arc $\widehat{AD}$ if $\angle ACD = 124°$.



   a) $\angle ABD =$

   b) $\widehat{AD} =$

4. Find the degree measure of the arcs and angle.



   a) $\angle BAC =$

   b) $\widehat{AC} =$

   c) $\widehat{BC} =$

5. Convert the degree measure to radian measure. Round to three decimal places.

   a) $77.4°$ b) $123.5°$

6. Convert the radian measure to degree measure. Round to one decimal place.

   a) 0.55 b) $\frac{\pi}{9}$

7. Find the arc length s and circumference C given the radius r and central angle θ.

a) $r = 4.5, \theta = 75°$

$s =$ _____

$C =$ _____

b) $r = 9, \theta = \frac{2\pi}{3}$

$s =$ _____

$C =$ _____

8. Find the missing quantity, if s is the arc length with radius r and central angle θ.

a) $s =$ _____, $r = 8$, $\theta = 1.2$

b) $s =$ _____, $r = 45$; $\theta = 95°$

c) $s =$ _____, $r = 2.54$ cm; $\theta = \frac{5\pi}{6}$

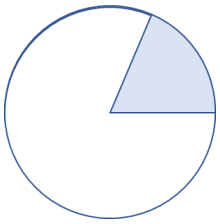
d) $s = 20$ mi , $r = 5.0$ mi, $\theta =$ _____° = _____ rad

9. Find the area of the circle and area of the sector, given the radius r and central angle θ.

a) $r = 4.5, \theta = 75°$

$A_{circle} =$ _____

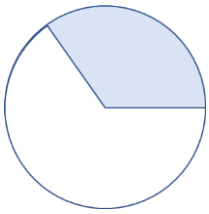
$A_{sector} =$ _____



b) $r = 9, \theta = \frac{2\pi}{3}$

$A_{circle} =$ _____

$A_{sector} =$ _____



10. Find the missing quantity, if A is the area of the sector of a circle with radius r and central angle θ.

a) $A = 25$ ft^2, $r =$_____, $\theta = 95°$

b) $A = 49.1$ mi^2 , $r = 5.0$ mi, $\theta =$ _____

11. A Cessna 310 Hartzell propeller is rotating at 2200 rpm. If the diameter of the propeller is 81 inches, what is the linear speed of the tip of the propeller as it spins. Give your answer in feet per minute and miles per hour.

12. The sweep second hand of a watch is 21.0 mm long.

a) What is the linear velocity of the tip? (mm/sec and cm/min to one decimal place)

b) What is the distance travelled by the outer tip of the second hand in 42 seconds?

c) What is the area of the sector covered by the second hand in 42 seconds?

d) What is the distance travelled by the outer tip during a 50 minute class?