AGS 2 Mod 7 Test Review Name: _____

	LT 1	LT 2	LT 4	LT 5
LT 1: Communication **LT 2:** Patterns/Modeling **LT 4:** Solving **LT 5:** Geometry				

Round all approximate solutions to the hundredth☺

1. Define the following vocab words and formulas (feel free to draw pictures)

Formula for Area $= \pi \cdot r^2$

Formula for Circumference $= 2 \cdot \pi \cdot r = \pi \cdot d$

Formula for Area of a Sector $= \frac{angle}{360} \cdot \pi r^2$

Formula for Arc Length $= \frac{angle}{360} \cdot 2\pi r$

Chord: 


Radius:

Diameter: 


Tangent Line:

Major/Minor Arc: 


Inscribed Angle:

Central Angle: 


Secant Line:

2. The Flash is racing some cars around a circular track that has a radius of 20 meters. How far has he run if he goes once around the track? $C = 2 \cdot \pi \cdot r$

$C = 2 \cdot \pi \cdot 20$

$= 40\pi m$ ← Exact

$= 125.66m$ ← Approximate

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3. Ms. Drinnon is getting married and orders a cake with a diameter of 8 inches. She wants her cake cutters to cut the cake so each slice has an angle of 15 degrees. How many slices are available for her guests? What is the area of one slice? What is the arc length of each slice?

$A_{sector} = \frac{15}{360} \cdot \pi(4)^2 = 0.666\pi\ in^2$ Exact

$= \frac{15}{360} \cdot 16\pi = 2.09 in^2$

$L_{arc} = \frac{15}{360} \cdot 2 \cdot \pi \cdot 4$

$= \frac{15}{360} \cdot 8\pi$

$= 0.33\pi\ in$

$= 1.05\ in$

Number of Slices: 24

$\frac{360}{15} = 24$

Sector Area:
Exact: $0.666\pi\ in^2$
Approximate: $2.09 in^2$

Arc Length:
Exact: $0.33\pi\ in$
Approximate: $1.05 in$

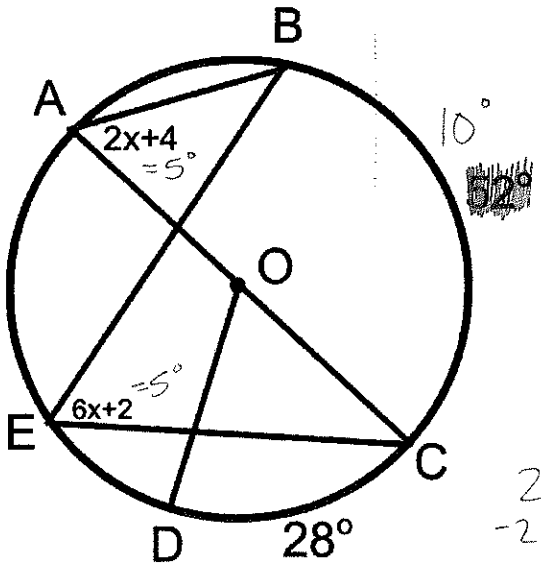
4. The circumference of a clock is 42πcm. What is the length of one of the hands (radius)?

$C = 2 \cdot \pi \cdot r$

$\frac{42\pi}{2} = \frac{2 \cdot \pi \cdot r}{2}$

$21\pi = \pi \cdot r \rightarrow 21cm = r$

5. Use the circle with center O below to find the following:



$2(\frac{1}{2})+4$
$= 1+4$
$= 5°$

$m\angle BAC =$ 5°

$m\angle CEB =$ 5°

$m\angle COD =$ 28°

$m\widehat{CDA} =$ 180°

$m\widehat{AB} =$ 170°

$2x+4 = 6x+2$
$-2x \quad -2x$
$4 = 4x+2$
$-2 \quad -2$
$\frac{2}{4} = \frac{4x}{4}$
$\frac{1}{2} = x$

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6. For each problem, find the missing arc measures or angle and

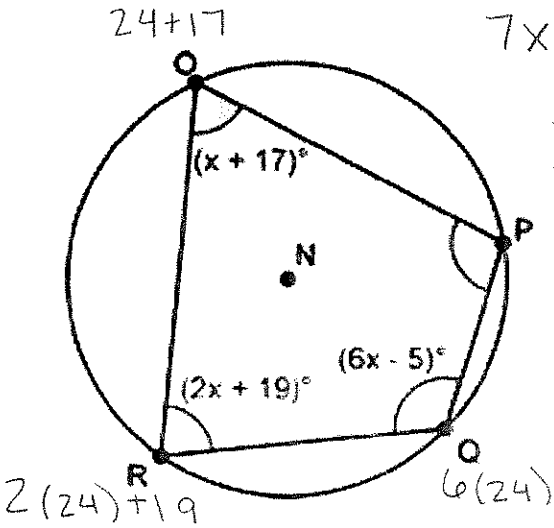
$X+17+6x-5=180$

$7x+12=180$

$-12 \quad -12$

$\frac{7x}{7}=\frac{168}{7}$

$x=24$



X = 24

m∠O = 41°

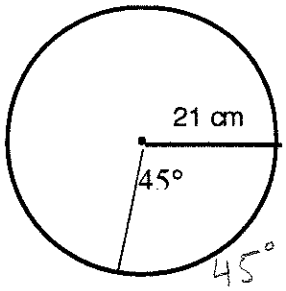
m∠P = 113°

m∠Q = 139°

m∠R = 67°

$360-41-139-67=113^\circ$

7. Find all of the following information given the circle below:



$C=2\cdot\pi\cdot r$

$C=2\cdot\pi\cdot 21$

$A=\pi\cdot(21)^2$

$A_{sector}=\frac{45}{360}\cdot\pi(21)^2$

$=\frac{45}{360}\cdot 441\pi$

$L_{arc}=\frac{45}{360}\cdot 2\cdot\pi\cdot 21$

$L_{arc}=\frac{45}{360}\cdot 42\pi$

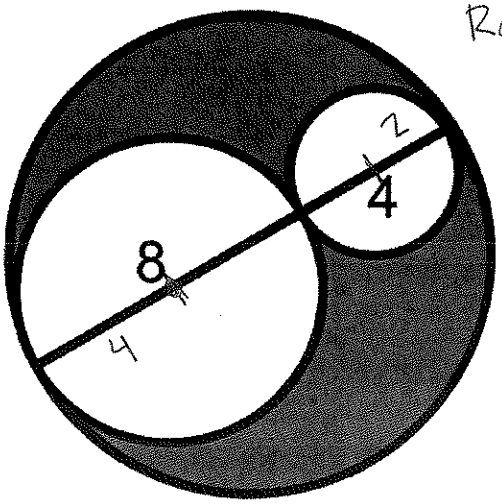
Circumference:
Exact: 42π cm
Approximate: 131.95 cm

Area:
Exact: 441π cm²
Approximate: 1385.44 cm²

Sector Area:
Exact: 55.125π cm²
Approximate: 173.18 cm²

Arc Length:
Exact: 5.25π cm
Approximate: 16.49 cm

8. Solve for the unknown measures. All measurements are in centimeters. Show all work and round to the hundredth☺



Diameter: 12cm
Radius: 6cm

Big ○
$A = \pi(6)^2$
$A = 36\pi$

Medium ○
$A = \pi(4)^2$
$A = 16\pi$

Small ○
$A = \pi(2)^2$
$A = 4\pi$

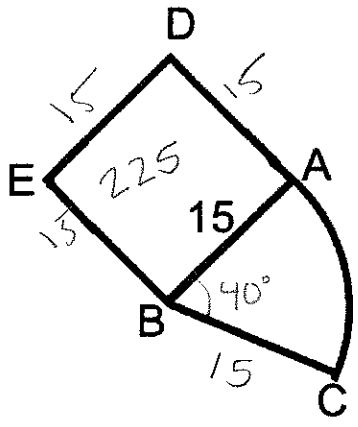
$36\pi - 16\pi - 4\pi = 16\pi$

What is the area of the shaded region?

Exact: $16\pi\ cm^2$

Approximate: $50.27\ cm^2$

9. A square is attached to a sector. The area of the sector is 25π. What is the measure of angle ABC? What is the perimeter of shape DACBE?



$A_{sector} = \frac{angle}{360} \cdot \pi(r)^2$

$25\pi = \frac{angle}{360} \cdot \pi(15)^2$

$360 \cdot 25\pi = \left(\frac{angle}{360} \cdot 225\pi\right) \cdot 360$

$\frac{9000\pi}{225} = \frac{angle \cdot 225\pi}{225}$

$\frac{40\pi}{\pi} = \frac{angle \cdot \pi}{\pi}$

$40 = angle$

Measure of angle FAN: 40°

Perimeter:

Exact: $(60 + 3.33\pi)\ cm$

Approximate: 70.47cm

$L_{arc} = \frac{angle}{360} \cdot 2 \cdot \pi \cdot r$

$L_{arc} = \frac{40}{360} \cdot 2 \cdot \pi \cdot 15$

$= \frac{40}{360} \cdot 30\pi$

$= 3.33\pi$

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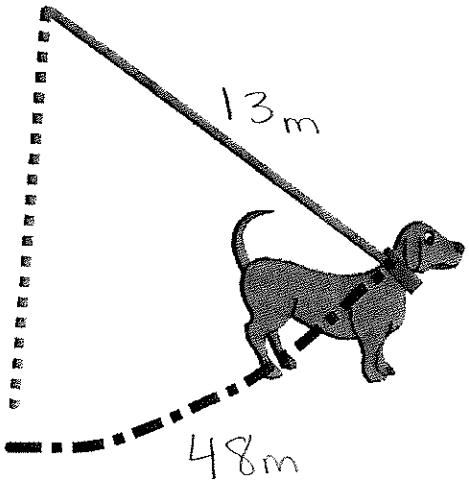
10. A dog is attached to a leash that is 13 meters long. The leash is attached on the vertex of the yard, so when the dog walks with the leash fully extended, he goes along a circular path. The length of this path is 48 meters. Find the angle of the vertex of the yard.



$L_{arc} = \frac{angle}{360} \cdot 2 \cdot \pi \cdot r$

$48 = \frac{angle}{360} \cdot 2 \cdot \pi \cdot 13$

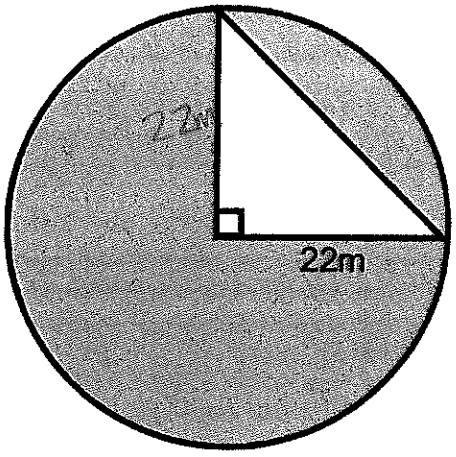
$360 \cdot 48 = \left(\frac{angle}{360} \cdot 26 \cdot \pi\right) \cdot 360$

$\frac{17280}{26} = \frac{angle \cdot 26 \cdot \pi}{26}$

$\frac{664.62}{\pi} = \frac{angle \cdot \pi}{\pi}$

$angle = 211.55°$

11. Find the area of the shaded region.



Big ○

$A = \pi (22)^2$

$A = 484\pi$

Area of △

$A = \frac{1}{2} b \cdot h$

$A = \frac{1}{2} \cdot 22 \cdot 22$

$A = 242$

Exact Solution: $(484\pi - 242)\,m^2$ Approximate Solution: $1278.53\,m^2$