UNIT 5A REVIEW GUIDE - ANGLES in CIRCLES

Name: _____Key_____

Block: S20

Learning Target 1: Angle Relationships in Circles

Important Relationships/Formulas

Central Angles = Arc

Inscribed Angles = $\frac{1}{2}$ Arc

Angle Inside = $\frac{arc_1 + arc_2}{2}$

Angle Outside = $\frac{Big - Small}{2}$

Inscribed Polygons = opposite angles are supplementary
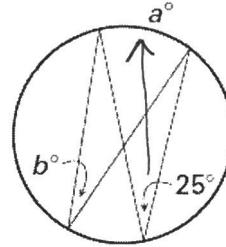
1. Use the picture to answer the following:

$180 - 55 = 125$

a. Find $\angle AGE$. $125°$

b. Find $m\widehat{BC}$. $35°$

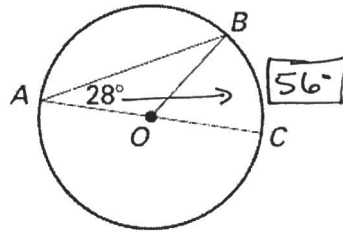c. Find $m\widehat{CD}$. $90°$

d. Find $m\widehat{CAE}$. $215°$

2. Find the values of a & b.

$a = 50°$

$b = 25°$

3. Find $m\widehat{BC}$. $\frac{360 - 96 = 264}{2}$

$\boxed{132°}$

4. Find $m\widehat{BC}$.

$\boxed{56°}$
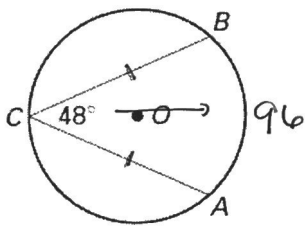
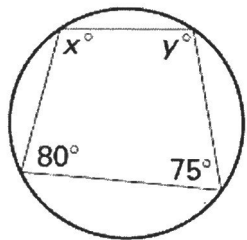5. Find the value of x.

$(12x + 10)°$

$(7x - 5)°$
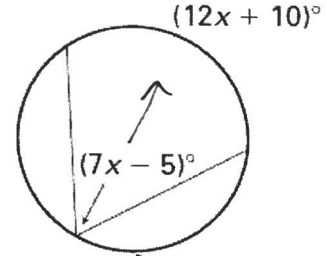
$2(7x-5) = 12x + 10$

$14x - 10 = 12x + 10$

$2x = 20$

$\boxed{x = 10}$

6. Find the values of x and y.
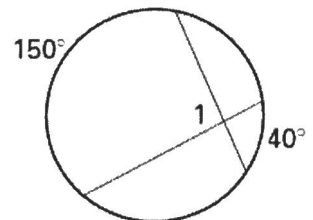

$x + 75 = 180$

$\boxed{x = 105°}$

$y + 80 = 180$

$\boxed{y = 100°}$

7. Find the values of x and y.

$\begin{array}{r} 180 \\ - 84 \\ \hline 96° \end{array}$
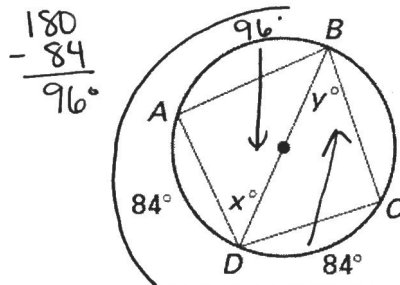
$\boxed{x = \frac{96}{2} = 48° \quad y = 42°}$

8. Find $m\angle 1$.

$\angle 1 = \frac{150 + 40}{2}$
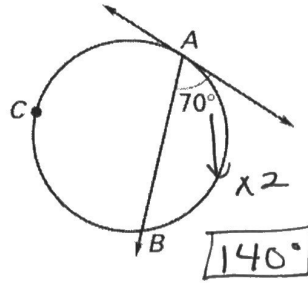
$\boxed{m\angle 1 = 95°}$

9. Find the value of x.

142° $x°$ $\dfrac{180}{-142}$
38°
69°
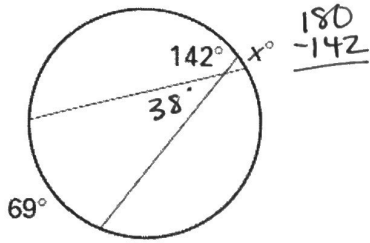
$38 = \dfrac{69 + x}{2}$

$76 = 69 + x$

$\boxed{x = 7}$

10. Find $m\widehat{AB}$.

A
70°
C
$x2$
B $\boxed{140°}$

11. Find $m\angle 1$.

$\dfrac{360}{-150}$
$\overline{216°}$

138°
1
12°
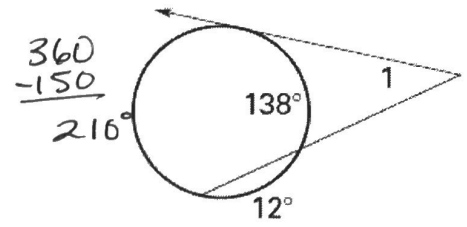
$m\angle 1 = \dfrac{210 - 138}{2}$

$\boxed{m\angle 1 = 36°}$

Learning Target #3: Area of a Sector

Important Relationships/Formulas
Area $\odot = \pi r^2$ Area of a Sector $= \dfrac{\pi r^2 \theta}{360}$

12. Find the area of a circle with radius of 8 ft.

$A = \pi(8)^2$

$\boxed{64\pi \, ft^2}$

13. The area of a circle is 25π m. What is the <u>diameter</u>?

$\dfrac{25\pi}{\pi} = \dfrac{\pi r^2}{\pi}$
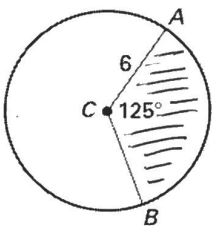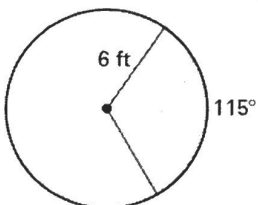
$25 = r^2$

$\sqrt{25} = \sqrt{r^2}$

$5 = r$

$\boxed{d = 2(5) = 10m}$

14. Find the area of sector $\widehat{AB}$. Write the answer in terms of pi.

A
6
C 125°
B

$A_s = \dfrac{\pi(6)^2(125)}{360} = \boxed{\dfrac{25\pi}{2} \text{ units}^2}$
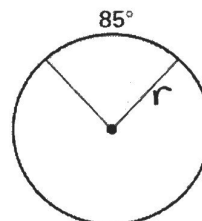
15. Find the area of the shaded region.

6 ft
115°

$A_s = \dfrac{\pi(6)^2(115)}{360}$

$\boxed{A_s = \dfrac{23}{2}\pi \, ft^2}$

16. The area of the shaded region is 47.5 cm^2.
Find the radius.

85°
r

$47.5 = \dfrac{\pi r^2(85)}{360}$
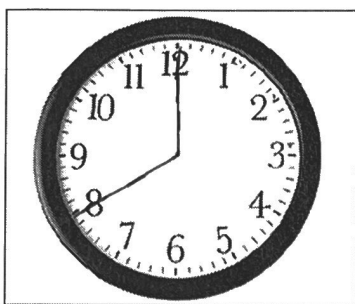
$17,100 = \pi r^2(85)$

$\dfrac{201.18}{\pi} = \dfrac{\pi r^2}{\pi}$

$64.04 = r^2$

$\boxed{8.00 = r}$
cm

17. (a) How many degrees does the minute hand move in 10 minutes?
(b) What would be the area of this sector if the minute hand is 14 centimeter long in this 10 minutes?
(c) If the clock has an area of 375.4 inches squared. What is the area of sector at 8:00?
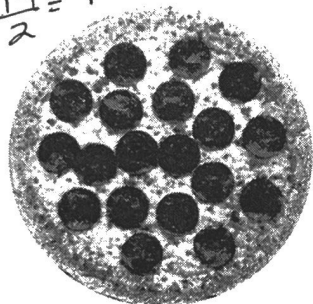

a) $360/12 = 30°$ $2(30) = 60°$

b) $A_S = \dfrac{\pi(14)^2(60)}{360°} = \dfrac{98}{3}\pi \, cm^2$

c) $A_S = (375.4)\left(\dfrac{240}{360}\right) = 250.27° \, in.^2$

$8:00 = 8(30)$

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18. You are working at a pizza delivery store and someone calls in a special order. They want a large pizza (14 inches in diameter) but only want 3 out of the 10 slices of the pizza to have pepperoni. What is the area of the three slices of pizza that will have pepperoni?
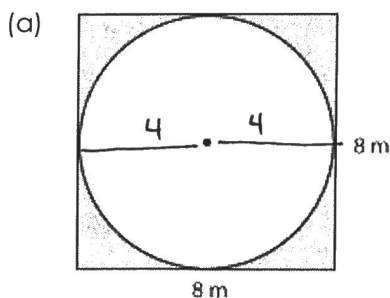
$r = \dfrac{14}{2} = 7$

$360/10 = 36°$

$\theta = 3(36) = 108°$

Exact

$A_S = \pi(7)^2\left(\dfrac{108}{360}\right) = \boxed{\dfrac{147}{10}\pi \, in^2}$

$\boxed{\approx 46.18 \, in^2}$
Approx.

19. Find the area of shading section:

(a)

4 . 4   8 m

8 m

Big □ − Small ⊙

8(8) $\pi(4)^2$

$\dfrac{64 - 16\pi}{}$

$\boxed{exact: 64 - 16\pi \, m^2}$
$\boxed{approx: 13.73 \, m^2}$

(b).

6

12

3 . 3   3   3

12 in
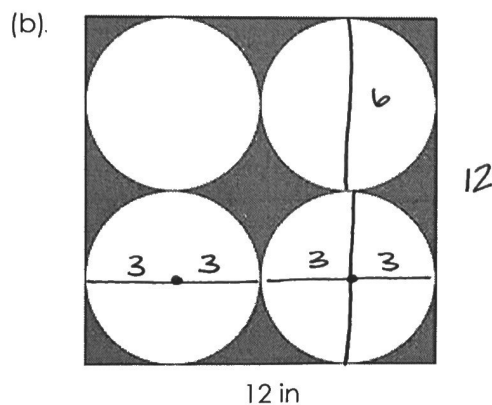
Big □ − 4 Small ⊙

$(12)(12)$ $4(\pi(3)^2)$

$144 - 36\pi$

$\boxed{Exact: 144 - 36\pi \, in^2}$
$\boxed{Approx: 30.90 \, in^2}$