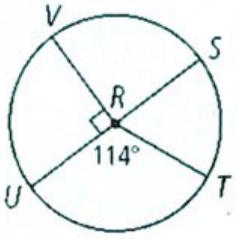
Name KEY _____ Period _____

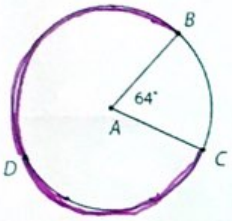
Secondary 2 Honors **Circles, Angles, Sectors & Arcs** **Assignment 2.1**

1. $\overline{SU}$ is a diameter. Find the measure of each angle or arc and identify if the arc is a major or minor arc.



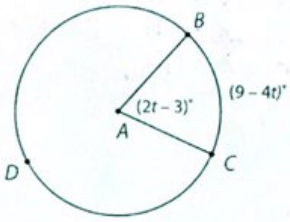
a. $\angle SRT =$ 66°
b. $\angle VRS =$ 90°
c. $\angle VRT =$ 156°
d. $\angle TRV =$ 156°
e. $\overset{\frown}{ST} =$ 66° minor arc
f. $\overset{\frown}{VS} =$ 90° minor
g. $\overset{\frown}{VST} =$ 156° minor
h. $\overset{\frown}{TUV} =$ 204° major

2. Find the measure of $\overset{\frown}{BDC}$.



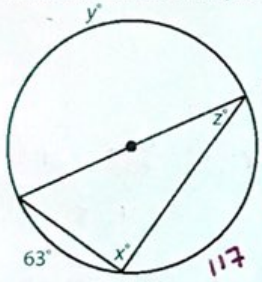
$360 - 64 = \boxed{296°}$

3. Find the value of t.



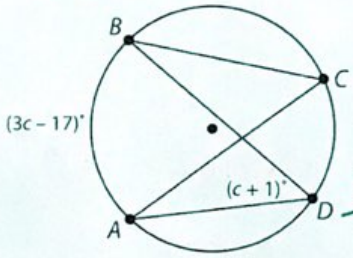
$2t - 3 = 9 - 4t$
$+4t + 3 \quad +3 + 4t$
$\frac{6t}{6} = \frac{12}{6}$
$\boxed{t = 2}$

4. Find the values of x, y, and z.



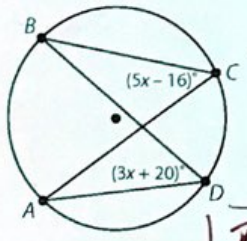
$z = \frac{1}{2}(63)$
$\boxed{z = 31.5°}$
$\boxed{y = 180°}$
117
$x = \frac{1}{2}(180°)$
$\boxed{x = 90°}$

5. Find $m\angle C$ and $m\angle D$.



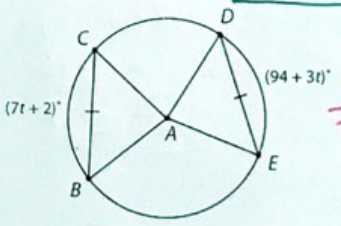
$3c - 17 = 2(c+1)$
$3c - 17 = 2c + 2$
$-2c + 17 \quad -2c + 17$
$\boxed{c = 19}$
$\boxed{m\angle C = 20°}$
$\boxed{m\angle D = 20°}$

6. Find the value of x and the measure of Arc $\overset{\frown}{AB}$



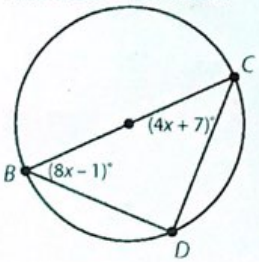
$5x - 16 = 3x + 20$
$-3x + 16 \quad -3x + 16$
$2x = 36$
$\boxed{x = 18}$
$3(18) + 20 = 74$
$\boxed{\overset{\frown}{AB} = 148°}$

7. Find the value of t.

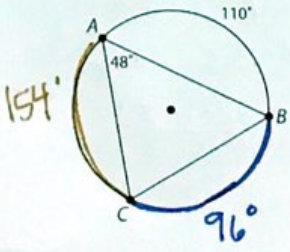


$7t + 2 = 94 + 3t$
$4t = 92$
$\boxed{t = 23}$

8. Find $m\angle B$ and $m\angle C$.

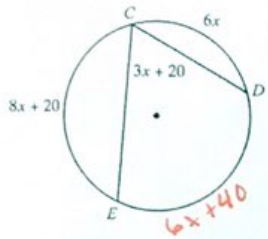


9. Find $\overset{\frown}{BC}$ and $\overset{\frown}{CA}$



$\overset{\frown}{BC} = 96°$
$\overset{\frown}{CA} = 154°$

10. Find $m\angle DCE$.



$6x+40+6x+8x+20=360$

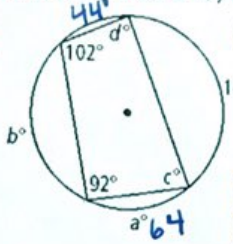
$20x+60=360$

$-60\ \ -60$

$20x=300$

$x=15$

11. Find the value of a, b, c, and d.



$b+140+44+64=360$

$b=112°$

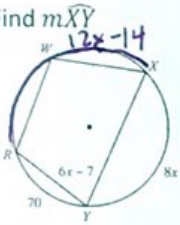
$d=\frac{1}{2}(176)$

$d=88$

$c=\frac{1}{2}(156)=78°$

$c=78°$

12. Find $m\overset{\frown}{XY}$



$3(15)+20=65°$

$\angle DCE=65°$

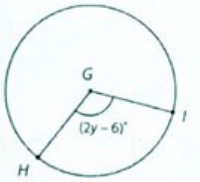
$12x-14+8x+24+70=360$

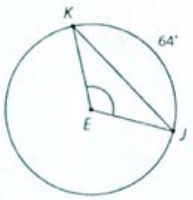
$20x+80=360$

$x=14$ $\quad 8(14)+24=$

$m\overset{\frown}{XY}=136°$

13. $\odot G \cong \odot E$. What is the value of y?





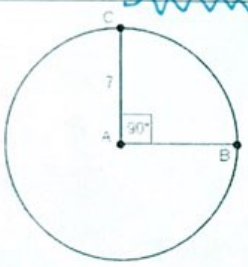
$2y-6=64$

$+6\ \ +6$

$2y=70$

$y=35$

Find each arc length in terms of π, then approximate the arc length and area of each sector to the nearest tenth.



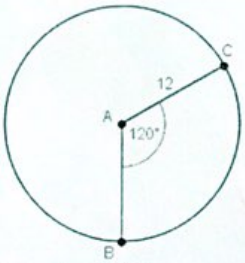
14. Length of BC =

$2\pi(7)\cdot\frac{90}{360}=3.5\pi$

≈ 11.0

15. Area of BC =

$\pi(7)^2\cdot\frac{90}{360}=12.25\pi\ u^2$

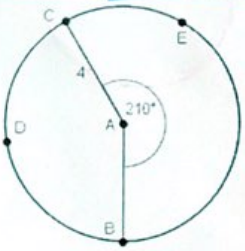


16. Length of CB =

$2\pi(12)\cdot\frac{120}{360}=8\pi$

17. Area of CB =

$\pi(12)^2\cdot\frac{120}{360}=48\pi\ u^2$



18. Length of BEC =

$2\pi(4)\cdot\frac{210}{360}=4.67\pi$

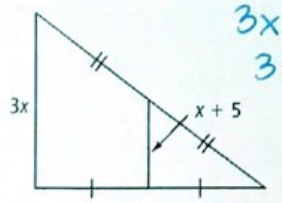
≈ 14.7

19. Area of BEC =

$\pi(4)^2\cdot\frac{210}{360}=9.33\pi\ u^2$

Review Problems: Solve for the variable.

20.

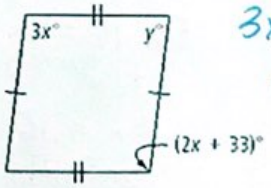


$3x=2(x+5)$

$3x=2x+10$

$x=10$

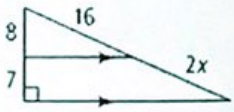
21.



$3x=2x+33$

$x=33$

22.



$\frac{8}{7}=\frac{16}{2x}$

$16x=112$

$x=7$

23.

$\frac{4}{10}\times\frac{10}{x}$

$\frac{4x}{4}=\frac{100}{4}$ $\quad x=25$

24. A stick 2 meters is placed vertically at point A. The top of the stick is in line with the top of a tree as seen, which is 3 meters from the stick and 30 meters from the tree. How tall is the tree? (hint use similar triangles)

$\frac{3}{2}=\frac{30}{x}$ $\quad 3x=60$

$x=20$