Geometry   **3-Review Sheet**   Circle Angles, Arcs, Circumference, & Area

Name: _____   Date: _____

Use the following to review for you test. **Work the Practice Problems on a separate sheet of paper.**

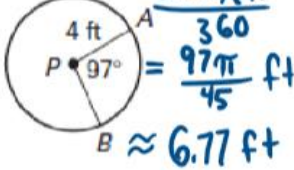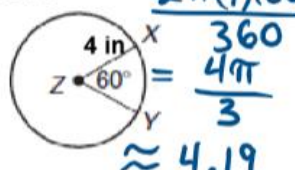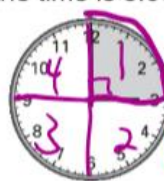| What you need to know & be able to do	Things to remember		
Find the measure of arcs from central angles.	Angle = Arc		1. Find *mMN* **70°** 2. Find *mQNR* **290°** 3. Find *mMR* **110°** 4. Find *mPRN* **360-80 280**
Find the measure of arcs and angles with inscribed angles	Angle = $\dfrac{\text{Arc}}{2}$	5. Find *m∠GHJ* **50°** 100° 7. Find *mBC* **80°** 	6. Find *mCD* **80°** 8. Find *m∠C* **40°** **100**
Find the measure of arcs and angles if the angle is inside the circle	Angle = $\dfrac{\text{Arc} + \text{Arc}}{2}$	9. Find *m∠1* and *m∠2* **82** **98** **82** **2(2)=1+ds** **2(1)=33+131** **164** 11. Find 1 & 2 **94** **2(70)=74+66** **x=74** **2(110)=126+2** **2̂=94**	10. Find the value of x. **2(128)=144x** 12. Find 1 & 2 **53** **133°**

Find the measure of arcs and angles if the angle is outside the circle.	$\text{Angle} = \dfrac{\text{Large Arc - Small Arc}}{2}$	**13. Find 1.** 138° 66° **36**	**14. Find 1 & 2.** **39** 2 1 **56** 134° 170°
		15. Find 1 & 2. 105° 2 **37.5** 1=**55** 130° 70°	**16. Find the value of x.** 50° **60** 170°
Find the area of circles	$\text{Area} = \pi r^2$	**17. The area of a circle is 31.4 cm². What is the radius?** $\sqrt{10}\,cm \approx 3.16\,cm$	**18. Find the area of a circle with a diameter of 22 inches.** $\pi(11)^2 = 121\pi$ $\approx 380.13\,in^2$
Find the area of sectors	$\text{sector} = \dfrac{\pi r^2 \theta}{360}$	**19. Find the area of the shaded region** $\dfrac{\pi(9)^2(106)}{360}$ $\dfrac{477\pi}{20}\,ft^2$ $\approx 74.93\,ft^2$ P R Q 106° 9 ft S	**20. Find the area of the shaded region.** $\dfrac{\pi(6)^2(80)}{360}$ $= 8\pi\,in^2$ $\approx 25.13\,in^2$ F 6 in 80° G H
Find the circumference of circles	$C = 2\pi r$ $C = \pi d$	**21. Find the circumference of a circle with a radius of 8 m.** $C = 16\pi \approx 50.27$	**22. The circumference of a circle is 25.12 ft. What is the radius?** $2\pi r = 25.12$ $r = 4\,ft.$
Find arc lengths	$\text{arclength} = \dfrac{2\pi r\theta}{360}$	**23. Find the arc length of AB** $\dfrac{2\pi(4)(97)}{360}$ $= \dfrac{97\pi}{45}\,ft$ $\approx 6.77\,ft$ 4 ft A P 97° B	**24. Find the arc length of XY.** $\dfrac{2\pi(4)(60)}{360}$ $= \dfrac{4\pi}{3}$ ≈ 4.19 4 in X Z 60° Y
Word Problems		**25. A birthday cake has a radius of 4 in. What is the length of icing needed to go around the end of the whole cake? How much icing would be used for one slice?** $C = 2\pi r$ $C = 2\pi(4) = 8\pi$ $\dfrac{8\pi}{12} = \dfrac{2\pi}{3}\,in$ $\approx 2.09\,in$	**26. A wall clock has an area of 452.39 in². Find the diameter of the clock. Then, find the area of the sector formed when the time is 3:00.** $A = \pi r^2$ $452.39 = \pi r^2$ $\sqrt{144} = \sqrt{r^2}$ $12 = r$ $d = 24$] Area of sector: $\dfrac{452.39}{4} = 113.1\,in^2$

Name _____

1. What is the $m\widehat{CD}$?

$50 + 60 + m\widehat{CD} = 180$
$110 + m\widehat{CD} = 180$
$m\widehat{CD} = 70°$
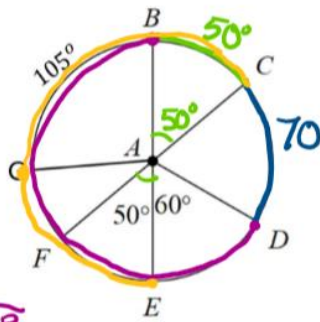
2. What is the $m\widehat{BC}$?

$50°$

3. What is the $m\widehat{DEB}$?

$180 + 60 = m\widehat{DEB}$
$240° = m\widehat{DEB}$

4. What is the $m\widehat{EGC}$?

$180 + 50 = m\widehat{EGC}$
$230° = m\widehat{EGC}$

5. What is the $m\widehat{DB}$?

$36 + 70 + 30 + m\widehat{DB} = 180$
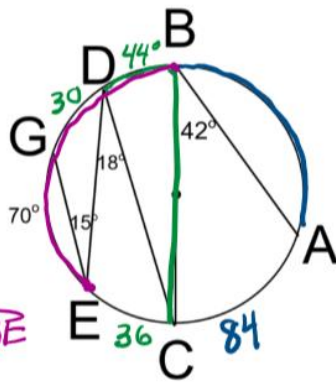$m\widehat{DB} = 44°$

6. What is the $m\widehat{BA}$?

$84 + m\widehat{BA} = 180$
$m\widehat{BA} = 96°$

7. What is the $m\widehat{BE}$?

$44 + 30 + 70 = m\widehat{BE}$
$144°$

8. What is the $m\widehat{FG}$?

$106 + m\widehat{FG} = 180$
$m\widehat{FG} = 74°$

9. What is the $m\angle HFG$?
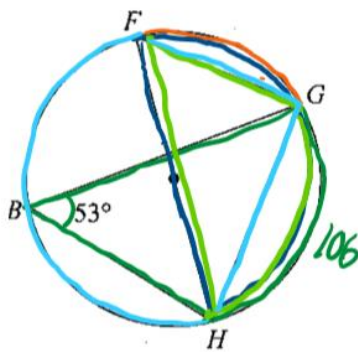
$2(m\angle HFG) = 106$
$m\angle HFG = 53°$

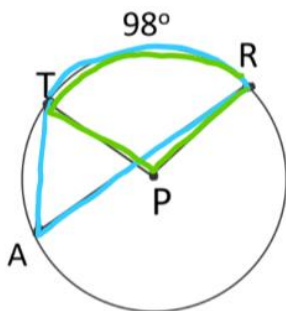10. What is the $m\angle FGH$?

$2(m\angle FGH) = 180$
$m\angle FGH = 90°$

11. What is the $m\angle TAR$?

$2(m\angle TAR) = 98$
$m\angle TAR = 49°$
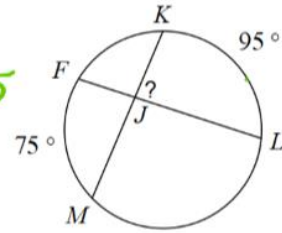
12. What is the $m\angle RPT$?

$m\angle RPT = 98°$

13. Find the value of '?'.

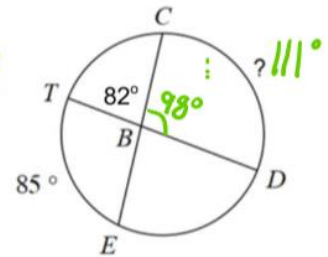$2(?) = 75 + 95$
$? = 85°$

14. Find the value of '?'.

$2(98) = ? + 85$
$196 = ? + 85$
$111 = ?$

$? \; 111°$
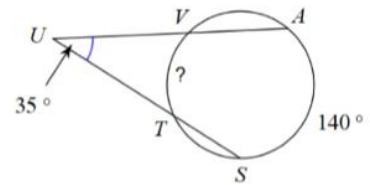
15. Find the value of '?'.
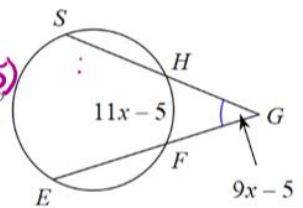
$2(35) = 140 - x$
$70 = 140 - x$
$-70 = -x$
$70 = x$

16. Find the value of x.

$2(9x - 5) = 130 - (11x - 5)$
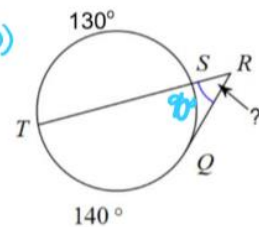$18x - 10 = 130 - 11x + 5$
$29x = 145$
$x = 5$

17. Find the value of '?'.

$m\widehat{SQ} = 360 - (130 + 140)$
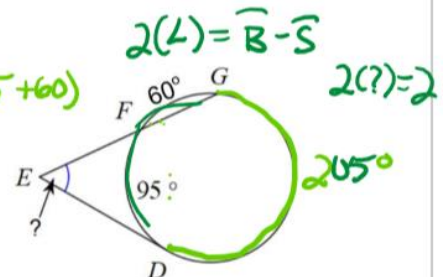$= 90°$
$2(?) = 140 - 90$
$? = 25$

18. Find the value of '?'.

$m\widehat{GD} = 360 - (95 + 60)$
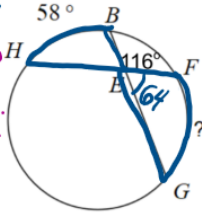$m\widehat{GD} = 205$
$2(?) = 205 - 95$
$2(?) = 110$
$? = 55$

$2(\angle) = \widehat{B} - \widehat{S}$
$2(?) = 2$
$205°$

19. Find the value of '?'.

IN $2(4) = T + \hat{2}$

$m\angle GEF = 180 - 116 = 64°$

$2(64) = 58 + ?$

$128 = 58 + ?$

$70 = ?$

58° B
116° F
E 64
?
G
H

20. Find the value of '?'.

$m\widehat{JK} = 360 - 238 = 122$

$2(?) = 122$ $2(\angle) = arc$

$? = 61°$

238°
J
122°
K   L
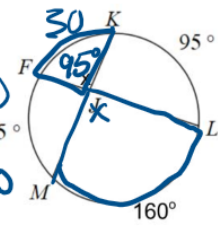? $2(?) = arc$
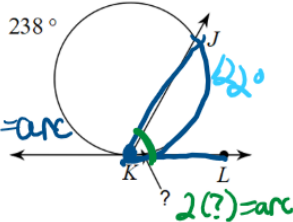
$2(A) = T + \hat{2}$

21. Find the value of x.

$m\widehat{FK} = 360 - (75 + 95 + 160)$

$= 30$

$2(x) = 160 + 30$ $2x = 190$

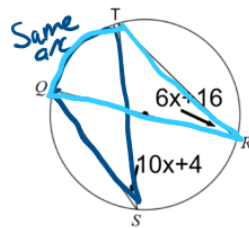$x = 95$

30 K
F 95°
*
75°   L
M
160°

22. Find the value of x.

$2(103x - 1) = 144 + 60$

$206x - 2 = 204$

$206x = 206$

$x = 1$

K   60°
L   N   U
$103x - 1$
144°
M
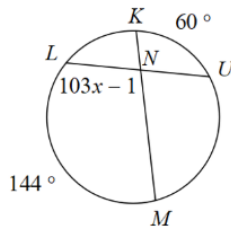
23. Find the value of x.
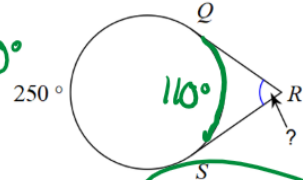
$6x + 16 = 10x + 4$

$12 = 4x$

$3 = x$

Same arc
T
Q
6x - 16
10x + 4
R
S

24. Find the value of x and w.

$5x + 110 = 180$

$5x = 70$

$x = 14$

$2w + 3 + 103 = 180$

$2w + 106 = 180$

$w = 37$

J
5x
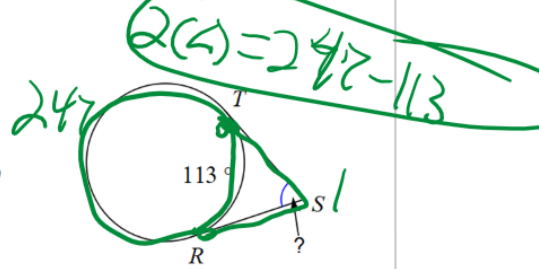M 2w+3   103° B
110°
N
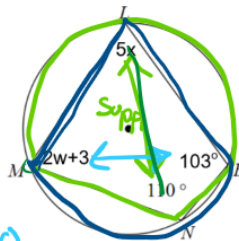
25. Find the value of '?'.

$m\widehat{QS} = 360 - 250 = 110°$

$2(?) = 250 - 110$

$2(?) = 140$

$? = 70°$

Q
250°   110°   R
?
S

$2(4) = 247 - 113$ 247

26. Find the value of '?'.

Special case:

$180 - 113 = ?$

$67°$

T
113°   S
R   ?

27. A circle has 12 congruent central angles. The diameter of the circle is 14 m. What is the arc length of one central angle's intercepted arc? Give answer in terms of pi and to the nearest tenth. ($r = 7$)

$\dfrac{360}{12} = 30°$

$\dfrac{2\pi(7)}{12} =$

arc length $= \dfrac{2\pi r \theta}{360}$

$= \dfrac{2\pi}{6} = \dfrac{2\pi(7)(30)}{360}$

28. If the intercepte arc on circle is $\dfrac{6\pi}{5}$ and the diameter 12 in. What is the arc length in terms of pi?
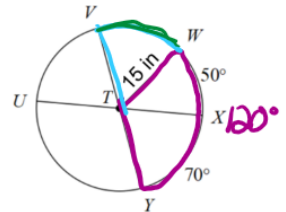
$\dfrac{6\pi}{5} \cdot \dfrac{180}{\pi} = 216°$

arc length $= \dfrac{2\pi(6)(216)}{360}$

$= \dfrac{36\pi}{5}$ in

29. If the intercepte arc on circle is $\dfrac{5\pi}{3}$ and the diameter in. What is the arc length rounded to the nearest hundredth?

sorry make it 10 forgot this

$\dfrac{5\pi}{3} \cdot \dfrac{180}{\pi} = 300°$

$r = 5$

$= \dfrac{2\pi(5)(300)}{360}$

$= \dfrac{25\pi}{3} \approx 26.18$ in

30. What is the arc length of $\widehat{WY}$? in terms of pi?

$a = \dfrac{2\pi(15)(120)}{360}$

$= 10\pi$ in.

V
W
15 in   50°
U   T   X 120°
70°
Y

32. What is the area of the sector formed by $\widehat{VW}$ rounded to the nearest hundredth?

$m\widehat{VW} = 180 - 120 = 60°$

$\dfrac{\pi r^2 \theta}{360}$

$SA = \dfrac{\pi(15)^2(60)}{360} = \dfrac{75}{2} \approx 117.81$ in