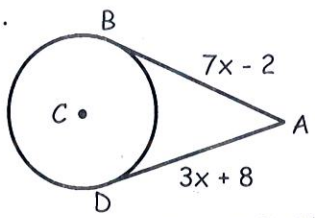
Geometry
PRACTICE TEST – UNIT 9

Name: Key
Date: _____

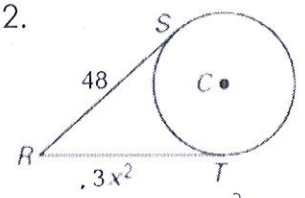
For each circle, find the value of x. Assume that segments that appear to be tangent are tangent.

1.



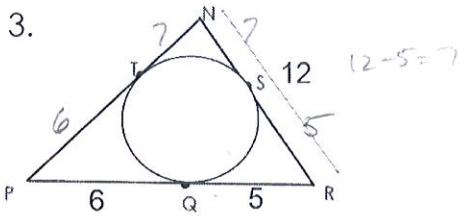
$7x-2=3x+8$
$4x=10$
$x=\frac{10}{4}$
$x=\frac{5}{2}$

2.



$\frac{3x^2}{3}=\frac{48}{3}$
$x^2=16$
$x=4$

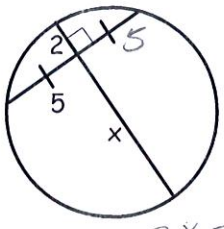
3.



12 − 5 = 7

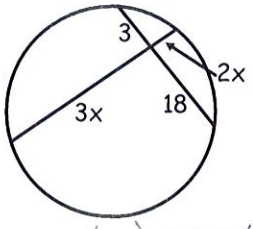
Perimeter = 36

4.



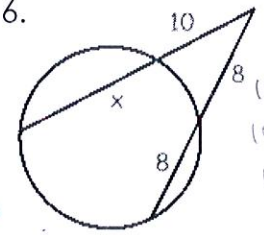
$2x=5\cdot5$
$2x=25$
$x=12.5$

5.



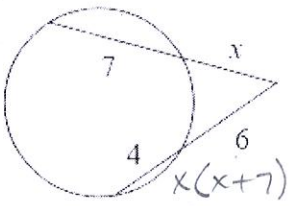
$3(18)=3x(2x)$
$54=6x^2$
$x^2=9$
$x=3$

6.



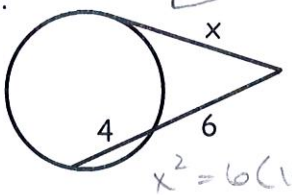
$10(x+10)=8(16)$
$10x+100=128$
$10x=28$
$x=\frac{28}{10}$
$x=\frac{14}{5}$

7.



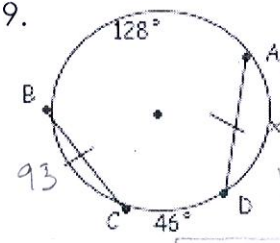
$x(x+7)=6(10)$
$x^2+7x=60$
$x^2+7x-60=0$
$(x+12)(x-5)=0$
$x=-12$ $x=5$

8.



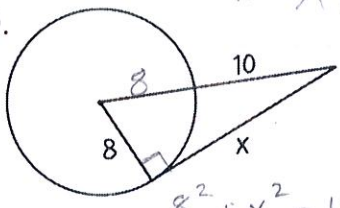
$x^2=6(10)$
$x^2=60$
$x=2\sqrt{15}$

9.



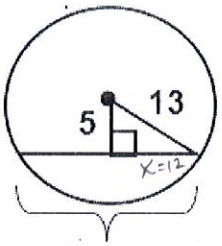
$128+46=174$
$360-174=186$
$\frac{186}{2}=93°$
$x=93°$

10.



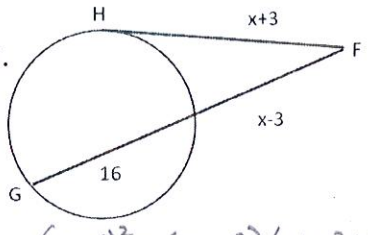
$8^2+x^2=18^2$
$64+x^2=324$
$x^2=260$
$x=2\sqrt{65}$

11.



$5^2+x^2=13^2$
$25+x^2=169$
$x^2=144$
$x=12$ → $2(12)=24$

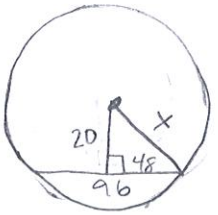
12.



$(x+3)^2=(x-3)(x-3+16)$
$(x+3)(x+3)=(x-3)(x+13)$
$x^2+3x+3x+9=x^2-3x+13x-39$
$x^2+6x+9=x^2+10x-39$
$48=4x$ $x=12$

13. A 96 inch chord is 20 inches away from the center of a circle. How long is the radius?

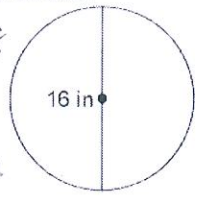
$20^2+48^2=x^2$
$400+2304=x^2$
$2704=x^2$
$x=52$



$\frac{96}{2}=48$

questions 14 – 17, find the indicated measure.

14. Find the circumference of the circle.

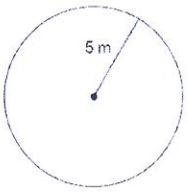


r = 8

A. In terms of pi: $2\pi 8 = 16\pi$ in

B. Round to nearest tenth: 50.3 in

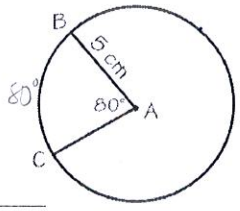
15. Find the area of the circle.



A. In terms of pi: $\pi 5^2 = 25\pi m^2$

B. Round to nearest tenth: $78.5\ m^2$

16. Find the length of $\widehat{BC}$.

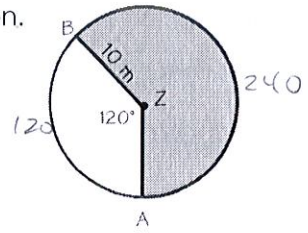


$\frac{2\pi 5(80)}{360}$

A. In terms of pi: $\frac{20\pi}{9}$ cm

B. Round to nearest tenth: 7.0 cm

17. Find the area of the shaded region.



$\frac{\pi 10^2 \cdot 240}{360}$

A. In terms of pi: $\frac{200\pi}{3}\ m^2$

B. Round to nearest tenth: $209.4\ m^2$

Find the missing parts of the circles for 18 – 21.

18. A circle has a circumference of 38π.

A. Find the diameter. 38

B. Find the radius. 19

$\frac{38\pi}{\pi} = \frac{\pi d}{\pi}$

$38 = d$

$\frac{38}{2} = r$

19. A circle has an area of 49π.

A. Find the radius. 7

B. Find the diameter. 14

$\frac{49\pi}{\pi} = \frac{\pi r^2}{\pi}$

$49 = r^2$

$r = 7$

20. A circle has a circumference of 24π feet. Find the length of an arc whose central angle is $70°$. Round to tenths place.

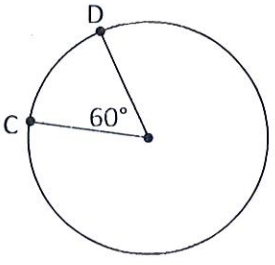
$AL = \frac{24\pi \cdot 70°}{360°} = \frac{14\pi}{3} = 14.7$ ft.

21. A circle has an area of 144π square meters. Find the area of the sector whose central angle is $190°$. Round to tenths place.

$A = \frac{144\pi(190°)}{360} = 76\pi = 238.8\ m^2$

22. The diameter of the circle is 50 centimeters. Put your answers in terms of pi.

$r = 25$



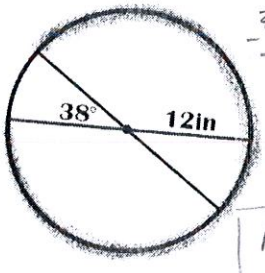
A. What is the length of Arc CD?

$AL = \frac{2\pi 25(60°)}{360°} = \frac{25\pi}{3}$ cm

B. What is the area of the sector formed by Arc CD?

$A_s = \frac{\pi(25)^2(60°)}{360°} = \frac{625\pi}{6}\ cm^2$

23. Find the length of the bolded arc. (in terms of pi)

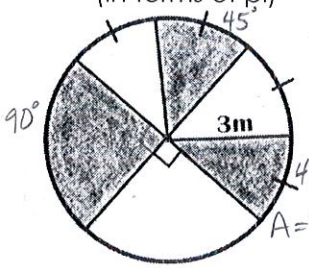


$360 - 38 = 322°$

$AL = \frac{2\pi 12(322)}{360}$

$AL = \frac{322\pi}{15}$ in.

24. Find total area of bolded sectors. (in terms of pi)



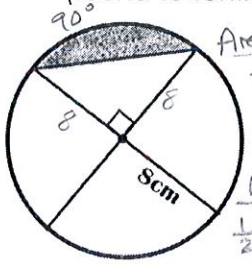
$\frac{180°}{4} = 45°$

$45° + 45° + 90° = 180°$

$A = \frac{\pi 3^2(180)}{360}$

$A = \frac{9\pi}{2}\ m^2$

25. Find area of shaded region. (round to tenths)



Area of Sector

$\frac{\pi 8^2(90)}{360} = 16\pi$

Area of Δ

$\frac{1}{2}(8)(8) = 32$

Area of Shaded Region

$16\pi - 32 = 18.3\ cm^2$