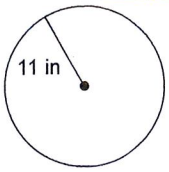
 Name_____

4B Review

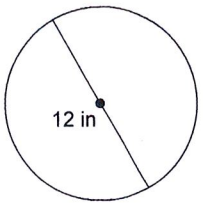
Date_____ Period____

Find the circumference of each circle. Use your calculator's value of π. Round your answer to the nearest tenth.

1) $C = \pi d = 22\pi$ ≈ 69.1 in



2) $C = 12\pi$ ≈ 37.7 in



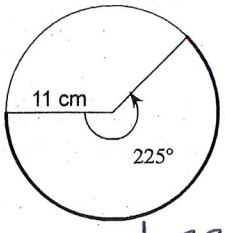
Find the radius of each circle.

3) circumference = 18π in $C = \pi d$, $\pi d = 18\pi$, $d = 18$, $r = 9$

4) circumference = 24π m $24\pi = \pi d$, $24 = d$, $12 = r$

Find the length of the arc. Answer in terms of PI

5) $AL = \pi d\left(\frac{\theta}{360}\right)$ or $\frac{2\pi r\theta}{360}$



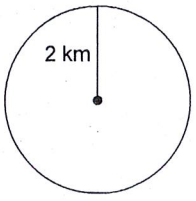
$d = 22$

$22\pi\left(\frac{225}{360}\right)$

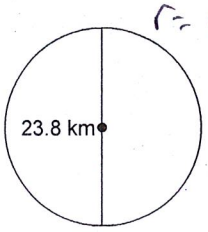
$= \frac{55\pi}{4}$ cm

Find the area of each. Use your calculator's value of π. Round your answer to the nearest tenth.

6) $A = \pi r^2$ $= \pi(2)^2 = 4\pi$ ≈ 12.6 km²



7) $r = 11.9$ $A = \pi(11.9)^2$ ≈ 444.9 km²



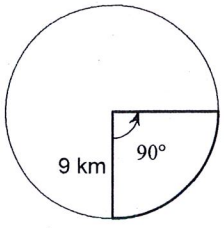
Find the radius of each circle.

8) area = 4π m² $\pi r^2 = 4\pi$, $r^2 = 4$, $r = 2$

9) area = 144π m² $\pi r^2 = 144\pi$, $r^2 = 144$, $r = 12$

Find the area of the sector. Answer in terms of PI.

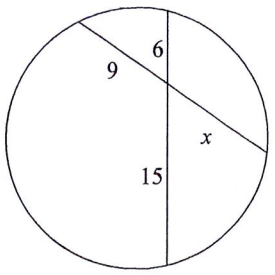
10) $A_{sect} = \pi r^2\left(\frac{\theta}{360}\right)$ or $\frac{\pi r^2\theta}{360}$



$= \pi(9)^2\left(\frac{90}{360}\right)$ $= \frac{81\pi}{4}$ km²

Solve for x. Assume that lines which appear tangent are tangent.

11)

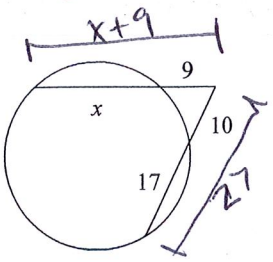


$9x = 6(15)$

$\frac{9x}{9} = \frac{90}{9}$

$\boxed{x = 10}$

12)



$9(x+9) = 10(27)$

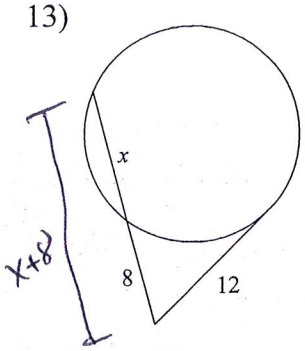
$9x + 81 = 270$

$-81 \quad -81$

$\frac{9x}{9} = \frac{189}{9}$

$\boxed{x = 21}$

13)



$8(x+8) = 12^2$

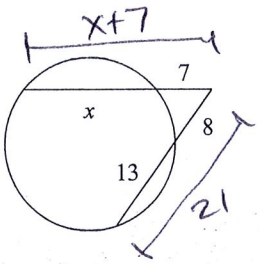
$8x + 64 = 144$

$-64 \quad -64$

$\frac{8x}{8} = \frac{80}{8}$

$\boxed{x = 10}$

14)



$7(x+7) = 8(21)$

$7x + 49 = 168$

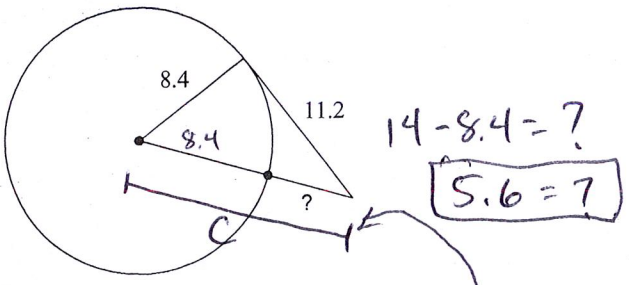
$-49 \quad -49$

$\frac{7x}{7} = \frac{119}{7}$

$\boxed{x = 17}$

Assume that lines which appear to be tangent are tangent.
Find the segment length indicated.

15)



$14 - 8.4 = ?$

$\boxed{5.6 = ?}$

$8.4^2 + 11.2^2 = c^2$

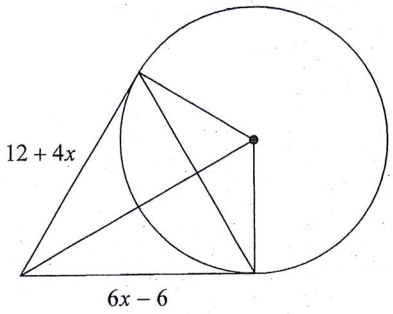
$196 = c^2$

$\sqrt{196} = c$

$14 = c$

Solve for x.

16)



$12 + 4x = 6x - 6$

$-4x \quad -4x$

$12 = 2x - 6$

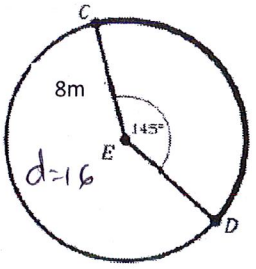
$+6 \quad +6$

$18 = 2x$

$\boxed{9 = x}$

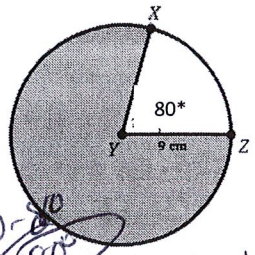
Unit 4B Review: Circles (Segments, Arc Length and Sectors)

17. Circle with center E is shown. The $m\angle CED = 145°$ and the length of CE is 8 cn
What is the length of arc $\overset{\frown}{CD}$? Leave in terms of pi



$AL = 16\pi\left(\frac{145}{360}\right) = \boxed{\frac{58\pi}{9}\text{ m}}$

18. Circle with center Y is shown. The $m\angle XY = 80°$ and the length of YZ is 9 cm. What is thearea of the shaded part of the circle? Leave in terms of pi.



$360 - 80 = 280°$

$A = \frac{(9^2)\pi(280)}{360}$

$\boxed{A = 63\pi\text{ cm}^2}$

19 Convert Radians to Degrees: $\times \frac{180}{\pi}$

a) $\frac{\pi}{4} \cdot \frac{180}{\pi} = 45°$

b) $\frac{3\pi}{5} \cdot \frac{180}{\pi} = 108°$

c) $\frac{7\pi}{12} \cdot \frac{180}{\pi} = 105°$

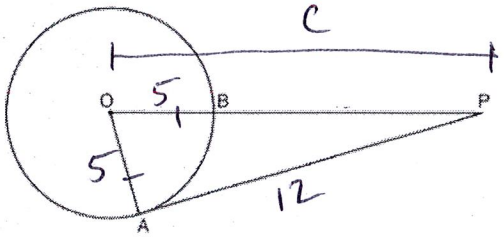
20. Convert Degrees to Radians: $\theta \times \frac{\pi}{180}$

a) $120° \times \frac{\pi}{180} = \frac{2\pi}{3}$

b) $135° \times \frac{\pi}{180} = \frac{3\pi}{8}$

c) $30° \times \frac{\pi}{180} = \frac{\pi}{12}$

21. In the diagram below AP is tangent to circle O at point A, OB = 5, and AP = 12.
What is the length of BP?



$5^2 + 12^2 = c^2$

$169 = c^2$

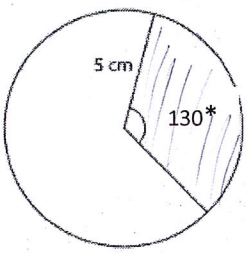
$13 = c$

$BP = c - 5$

$= 13 - 5$

$= 8$

22. Rounded to the nearest whole number, what is the area of the sector below whose central angle is 130° ?



$A = \pi(5)^2\left(\frac{130}{360}\right)$

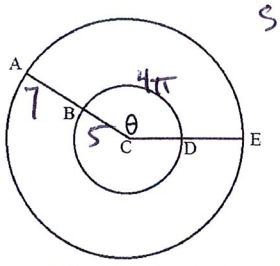
$= \frac{325\pi}{36}$

≈ 28.4

whole number

$\approx 28\text{ cm}^2$

23. The image below shows two circles, both with center C. $\overline{BC} = 5$ cm , $\overline{AB} = 7$ cm The length of minor arc $BD = 4\pi$ cm . What is the length of minor arc AE? Leave in terms in pi.



Solve for θ

$4\pi = \frac{2\pi(5)\theta}{360}$

$4 = \frac{2(5)\theta}{360}$

$144 = \theta$

5+7

radius of big circle = 12

$AL = \frac{2\pi(12)(144)}{360}$

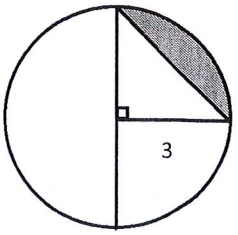
$= \frac{48\pi}{5}$

24. The radius of the circle below is 3 units. Which expression represents the area of the shaded segment in the circle below? Leave in terms of pi.

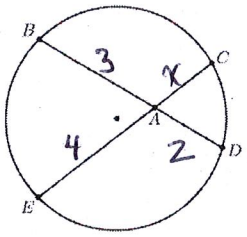
$A_{sect} = \pi(3)^2\left(\frac{90}{360}\right) = \frac{9\pi}{4}$

$A_{\Delta} = \frac{1}{2}(3)(3) = \frac{9}{2}$

$A_{segment} = \frac{9\pi}{4} - \frac{9}{2}$



25. In the circle below, $AB = 3$, $AE = 4$, and $AD = 2$. What is the length of AC ?



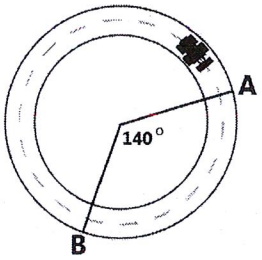
$4x = 3(2)$

$4x = 6$

$x = \frac{6}{4}$

$x = \frac{3}{2} = 1.5$

26. A toy car driving **clockwise** around the circular track completes one full lap around every 12 seconds. How long does it take the toy car to travel from point A to point B? Round to nearest tenth.



Don't make this too hard!

$12\left(\frac{140}{360}\right) \approx 4.7$ sec

Same as

$\frac{7}{18}(12) = 4.7$ sec