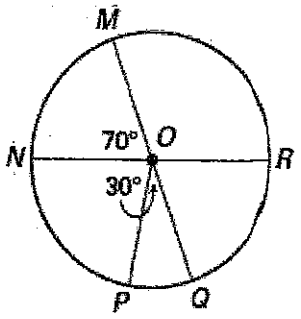
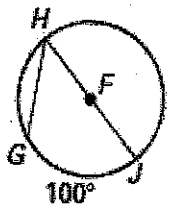
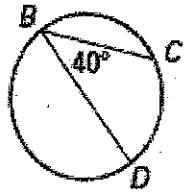
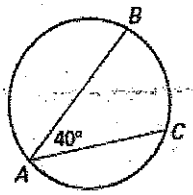
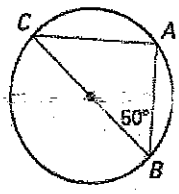
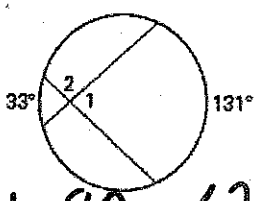
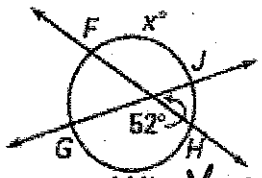
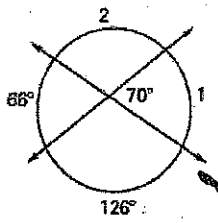
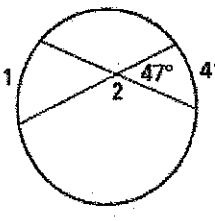
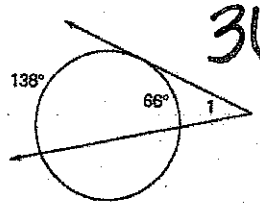
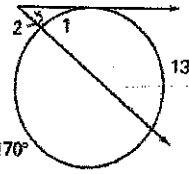
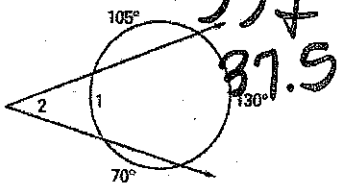
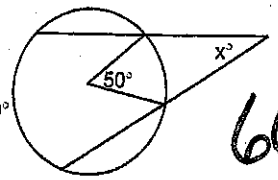
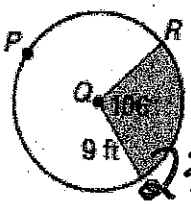
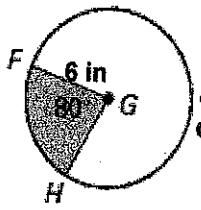
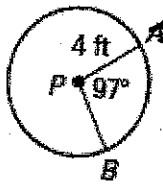
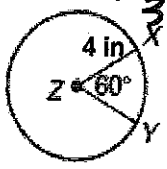
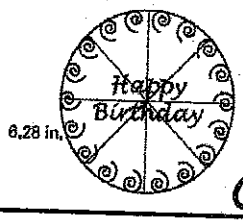
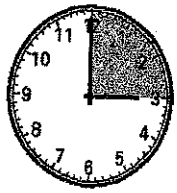
GSE Honors Geometry **Unit 4A Review Sheet** Key 4 – Circles

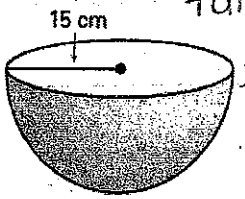
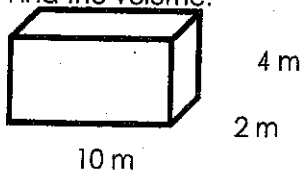
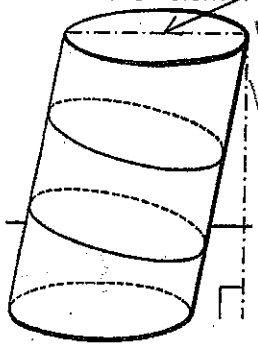
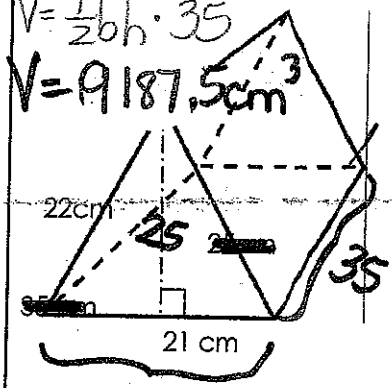
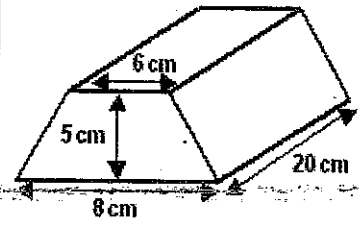
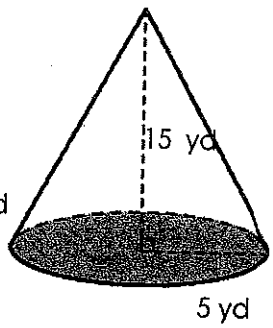
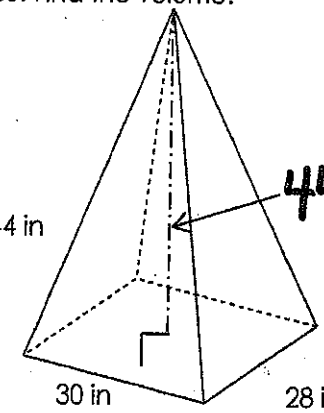
Name: _____ Date: _____

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 $m\widehat{MN}$ 70 2. Find $m\widehat{QNR}$ 290° 3. Find $m\widehat{MR}$ 110° 4. Find $m\widehat{PRN}$ 280°
Find the measure of arcs and angles with inscribed angles	Angle = $\frac{\text{Arc}}{2}$	5. Find $m\angle GHJ$  50°	6. Find $m\widehat{CD}$  80°
		7. Find $m\widehat{BC}$  80°	8. Find $m\angle C$  40°
Find the measure of arcs and angles if the angle is inside the circle	Angle = $\frac{\text{Arc} + \text{Arc}}{2}$	9. Find $m\angle 1$ and $m\angle 2$  $\angle 1 = 82$ $\angle 2 = 98$	10. Find the value of x.  $x = 112$
		11. Find 1 & 2  74 + 94	12. Find 1 & 2  53 + 133

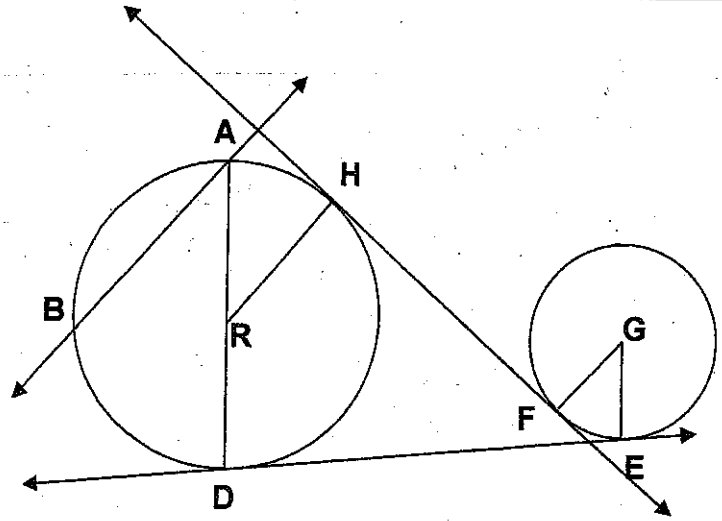
2

Find the measure of arcs and angles if the angle is outside the circle.	Angle = $\frac{\text{Large Arc} - \text{Small Arc}}{2}$	13. Find 1.  36	14. Find 1 & 2.  1 is 56 ∠2=39
		15. Find 1 & 2.  55 + 87.5	16. Find the value of x.  60
Find the area of circles	Area = πr^2	17. The area of a circle is 31.4 cm². What is the radius? 3.16	18. Find the area of a circle with a diameter of 22 inches. 121π or 380.13
Find the area of sectors	$Sector = \frac{\text{Arc}}{360^\circ} \cdot \pi r^2$	19. Find the area of the shaded region  74.93 or 23.85π	20. Find the area of the shaded region.  8π or 25.13
Find the circumference of circles	Circumference = $2\pi r$	21. Find the circumference of a circle with a radius of 8 m. 16π or 50.3	22. The circumference of a circle is 25.12 ft. What is the radius? r=4
Find arc lengths	$Circumference = \frac{\text{Arc}}{360^\circ} \cdot 2\pi r$	23. Find the arc length of $\overset{\frown}{AB}$  $\frac{97}{360}(8\pi)$ 6.8π	24. Find the arc length of $\overset{\frown}{XY}$.  $\frac{60}{360} \cdot 8\pi$ 4.2 in
Word Problems	25. A birthday cake is sliced into 8 equal pieces. The arc length of one piece of cake is 6.28 inches, as shown. Find the diameter of the cake.  d≈16	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.  d=24	

Find the volume of spheres.	$V = \frac{4}{3}\pi r^3$	23. A beach ball has a diameter of 8 inches. Find its volume. $V = \frac{4}{3}\pi(4)^3$ $V = \frac{256}{3}\pi$ or 268.1	24. Find the volume of the hemisphere. take 1/2  $\frac{4}{3}\pi(15)^3$ 2250π
Find the volume of prisms and cylinders.	V=Bh (where B is the area of the base) $A_{Rectangle} = bh$ $A_{Circle} = \pi r^2$ $A_{Triangle} = \frac{1}{2}bh$ $A_{Trapezoid} = \frac{1}{2}(b_1+b_2)h$	25. Find the volume.  $80m^3$	26. Find the volume.  $V=\pi r^2 h$ $V=\pi(6^2)(20)$ 720π
		27. Find the volume. $V=\frac{1}{2}bh \cdot 35$ $V=9187.5cm^3$  21	28. Find the volume.  $V=700\ cm^3$
Find the volume of pyramids and cones.	V = 1/3 Bh	29. Find the volume.  $V=125\pi$ or $392.7\ yds^3$	30. Find the volume.  $V=\frac{1}{3}(28\cdot30)44$ $V=12320\ in^3$

Honors GSE Geometry
Unit 4 Circles Review 1

Name: Key 4

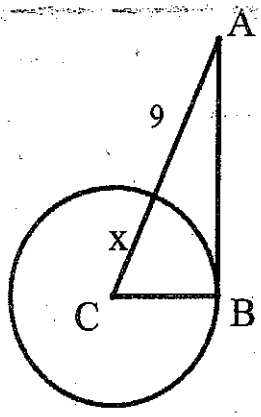


Use the figure above to give an example of each of the following terms:

1. Center R, G
2. Radius $\overline{RH}$ $\overline{RA}$ $\overline{GE}$
3. Diameter $\overline{AD}$
4. Chord $\overline{AB}$
5. Secant $\overleftrightarrow{AB}$
6. Common Internal Tangent $\overleftrightarrow{HE}$
7. Common External Tangent $\overleftrightarrow{DE}$
8. Point of Tangency H, D, F, E

BC is a radius of ⊙C and $\overline{AB}$ is tangent to ⊙C.
Find x.

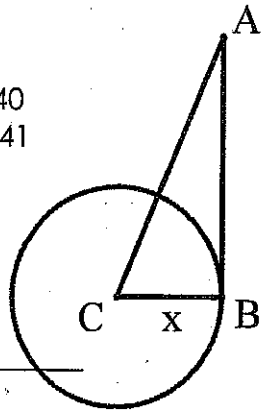
9. AB = 15



$x^2+15^2=(x+9)^2$
$x^2+225=x^2+18x+81$
$\frac{144}{18}=\frac{18x}{18}$

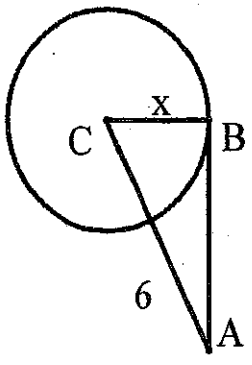
x = 8

10. AB = 40
AC = 41



x = 9

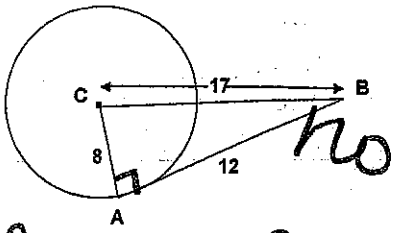
11. AB = 12



x = 9

Tell whether $\overline{AB}$ is tangent to Circle C. Show work and explain your reasoning. $\overline{AB}$

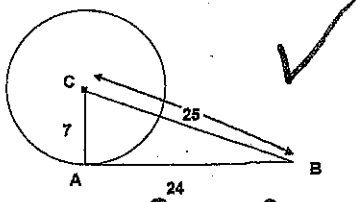
12.



no

$8^2+12^2 \neq 17^2$

13.



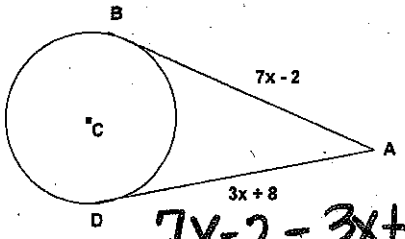
✓ yes

$7^2+24^2 = 25^2$

$625 = 625$

AB and AD are tangents to Circle C. Find the value of x. Then find AB and AD.

14.

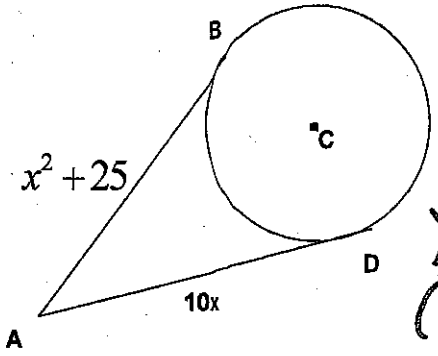


$7x-2 = 3x+8$

$4x = 10$

$x = 5/2$ or 2.5

15.



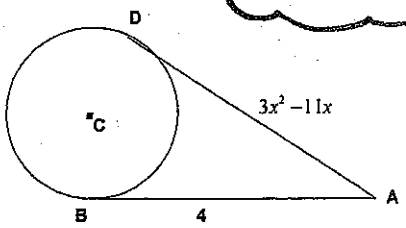
$x^2+25 = 10x$

$x^2-10x+25=0$

$(x-5)(x-5)=0$

$x=5$

16.



$3x^2-11x = 4$

$3x^2-11x-4=0$

$(3x+1)(x-4)=0$

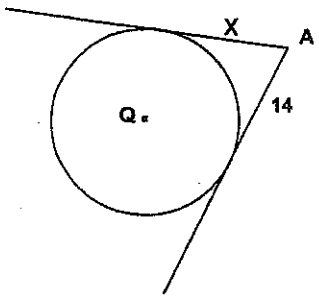
$x = -1/3, 4$

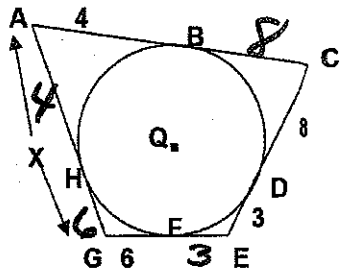
For each circle Q below, find the value of x. The segments that appear tangent are tangent.

17. x = 14

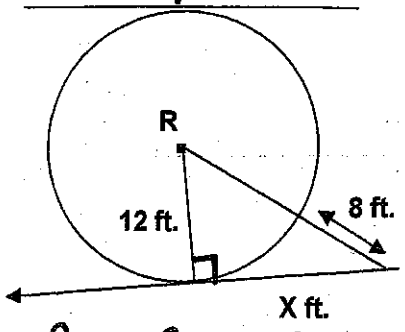
28. x = 10

Perimeter of Quad ACEG = 42





19. x = 16

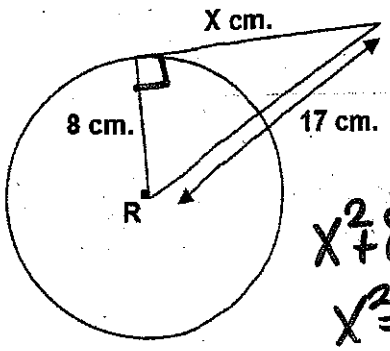


$x^2 + 12^2 = 20^2$

$x^2 = 256$

$x = 16$

20. x = 15

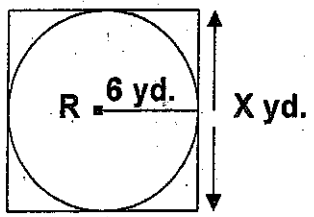


$x^2 + 8^2 = 17^2$

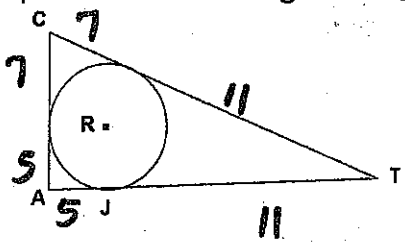
$x^2 = 225$

$x = 15$

21. x = 12

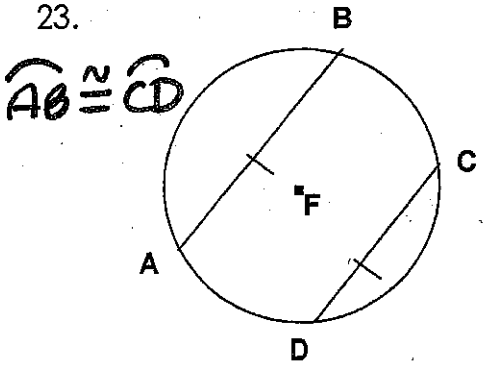


22. Circle R is inscribed in triangle CAT. Find the perimeter of triangle CTA if AJ = 5, CT = 18 and JT = 11. Find the perimeter of Triangle CAT: 46



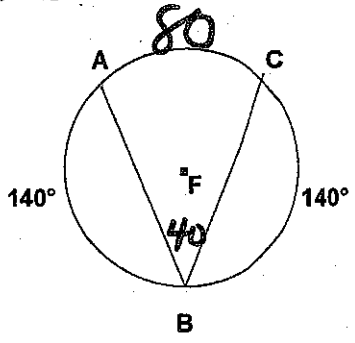
What can you conclude about the diagram?

23.



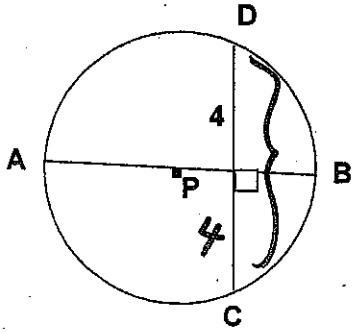
$\overset{\frown}{AB} \cong \overset{\frown}{CD}$

24.



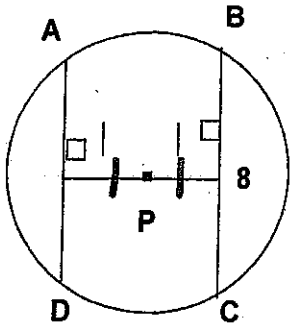
Find the indicated measure for Circle P.

25.



DC = 8

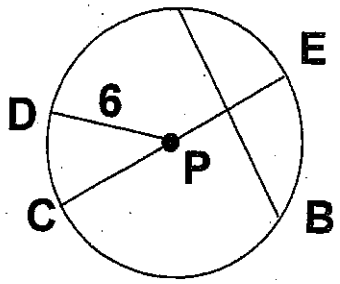
26.



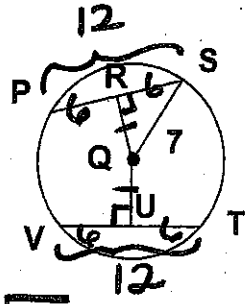
AD = 8

27.

EC = 12



28. PS = 12, TV = 12 and SQ = 7. Find QU. $\overline{PS} \perp \overline{RQ}$ and $\overline{VT} \perp \overline{UQ}$.



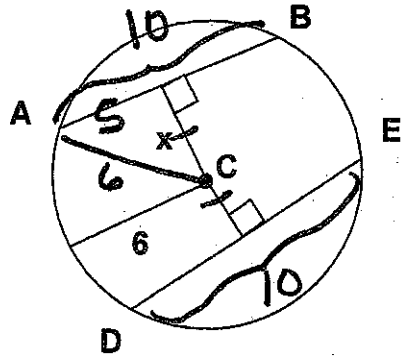
$6^2 + x^2 = 7^2$

$x^2 = 13$

$x = \sqrt{13}$

QU = $\sqrt{13}$

29. AB = DE = 10, radius = 6. Find x.



$5^2 + x^2 = 6^2$

$x^2 = 11$

$x = \sqrt{11}$

X = $\sqrt{11}$

Honors Geometry
Circles Review 2

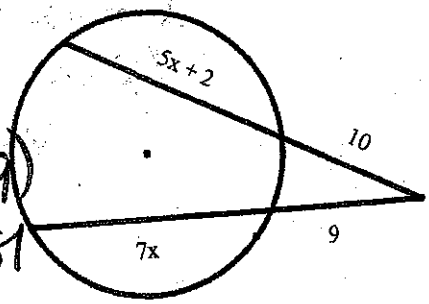
Name 9
Period _____

All segments that appear tangent are tangent. SHOW ALL WORK. Use units when appropriate. No decimal answers unless stated otherwise.

$x =$ 3 1.

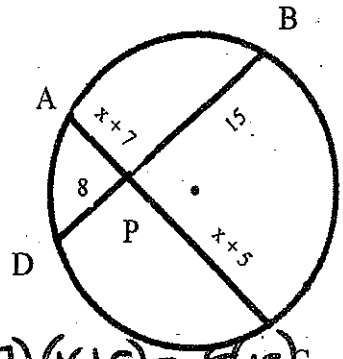
$x =$ 5 2.

1.



$10(5x+12)=9(7x+9)$
$50x+120=63x+81$
$39=13x$
$3=x$

2.

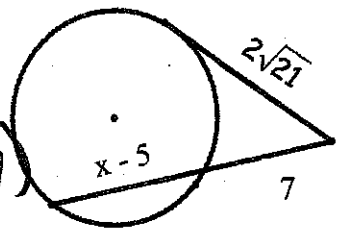


$(x+7)(x+5)=8(15)$
$x^2+12x+35=120$
$x^2+12x-85=0$
$(x+17)(x-5)=0$
$x=-17, 5$

$x =$ 10 3.

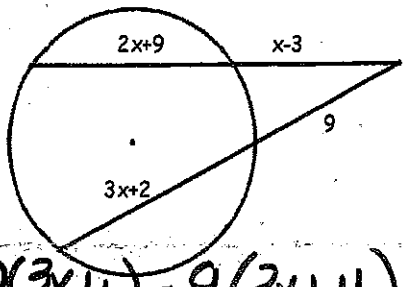
$x =$ 13 4.

3.



$(2\sqrt{21})^2 = 7(x-5+7)$
$4(21)=7(x+2)$
$84=7x+14$
$70=7x$

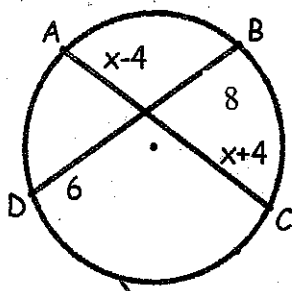
4.



$(x-3)(3x+6)=9(3x+11)$
$3x^2+6x-9x-18=27x+99$
$3x^2-30x-117=0$
$x^2-10x-39=0$
$(x-13)(x+3)=0$
$x=13, -3$

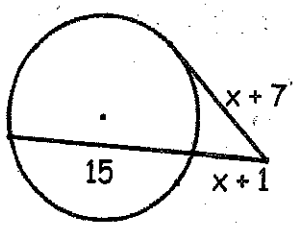
AC = 16 5. Find AC 5.

$x =$ 11 6.



$(x+4)(x-4)=6(8)$
$x^2-16=48$
$x^2=64$
$x=8$

6.

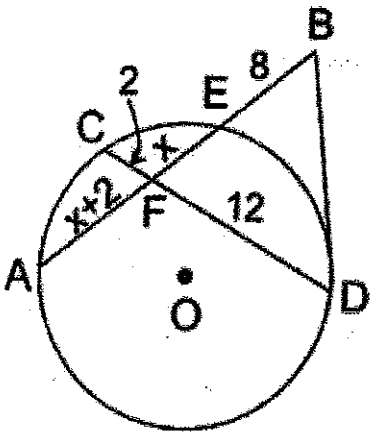


$(x+7)^2=(x+1)(x+16)$
$x^2+14x+49=x^2+17x+16$
$33=3x$
$11=x$

Find the indicated length. All segments that appear tangent are tangent. **No decimal answers.** (2 points each blank)

x = 4 (2 pts.) 7.

BD = 12 (2 pts.) 8.



$X(X+12) = 2(12)$

$X^2 + 2X = 24$

$X^2 + 2X - 24 = 0$

$(X+6)(X-4) = 0$

$X = -6, 4$

$BD^2 = 8(18)$

$BD^2 = 144$

$BD = 12$

Find the indicated measure. Round to the nearest hundredth.

18.7 or 18.8 The area of a circle is 275 in². Find the diameter.

$A = \pi r^2$

$\frac{275}{\pi} = \frac{\pi r^2}{\pi}$

$9.4 = r$

$2(9.4)$

1320.25 10. The circumference of a circle is 41π cm. Find the area.

$C = 2\pi r$

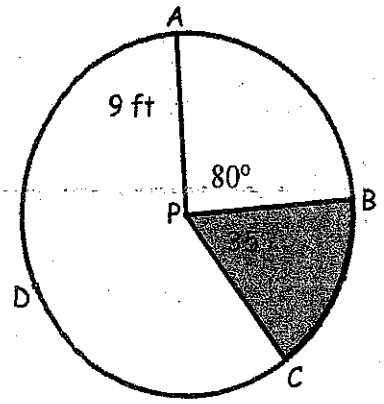
$\frac{41\pi}{2\pi} = \frac{2\pi r}{2\pi}$

$20.5 = r$

$A = \pi r^2$

$A = \pi(20.5)^2$

Given ⊙ P, find the EXACT values. Radius = 9 ft.



4π 11. Find the length of $\overset{\frown}{AB}$.

$\overset{\frown}{AB} = \frac{80}{360} \cdot 2\pi(9) = 4\pi$

14π 12. Find the length of $\overset{\frown}{ADC}$.

$C = 2\pi r$

$C = 2\pi(9)$

$C = 18\pi$ entire circle so $\overset{\frown}{ADC} = 18\pi - 4\pi = 14\pi$

18π 13. Find the area of the sector formed by ∠APB and $\overset{\frown}{AB}$.

$A = \frac{80}{360}\pi(9)^2$

$A = 18\pi$

63π 14. Find the area of the sector formed by ∠APC and $\overset{\frown}{ADC}$.

Circle $A = \pi(9^2) = 81\pi$

Subtract -18π $= 63\pi$