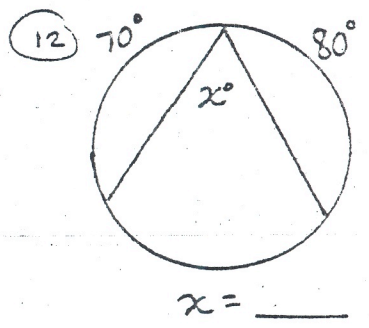
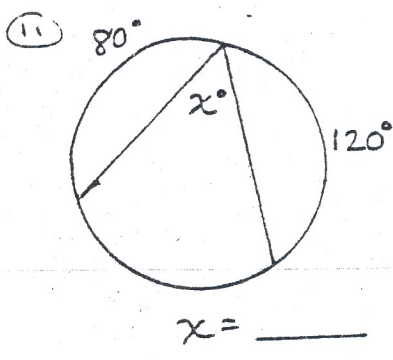
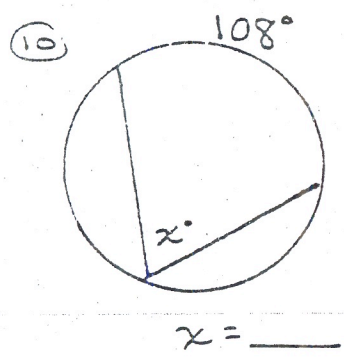
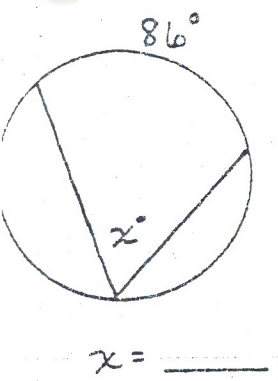
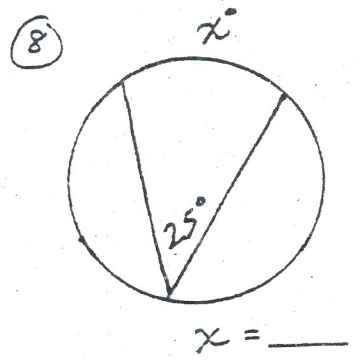
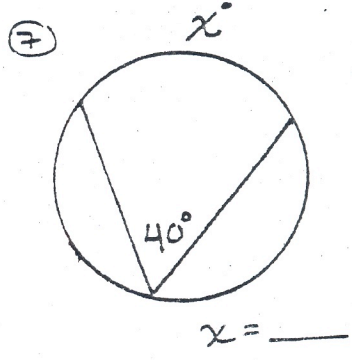
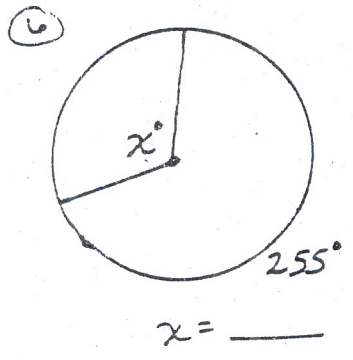
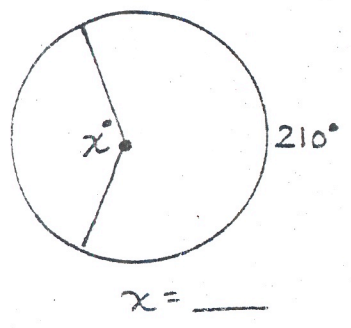
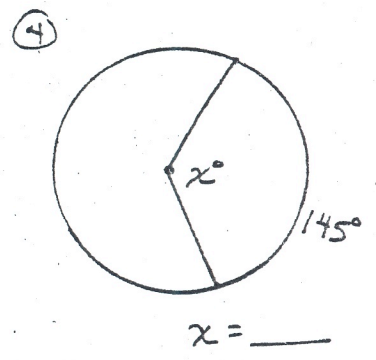
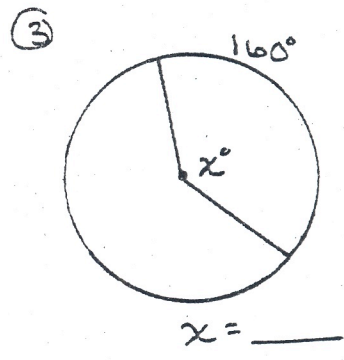
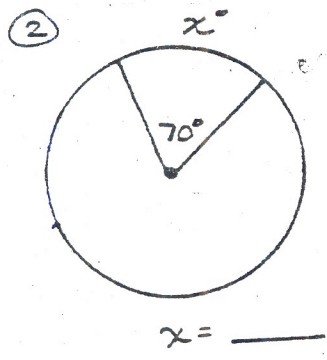
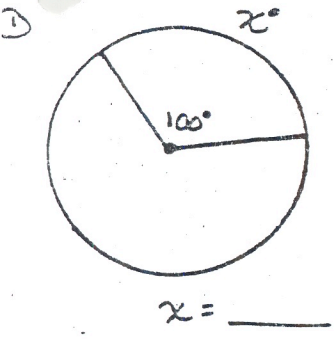
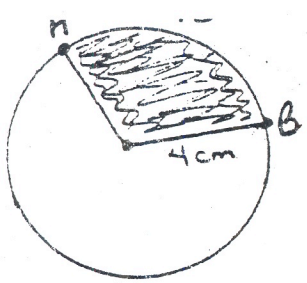
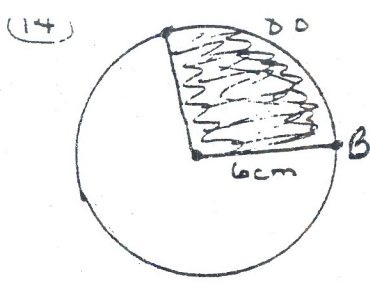


Find the value of  $x$ :

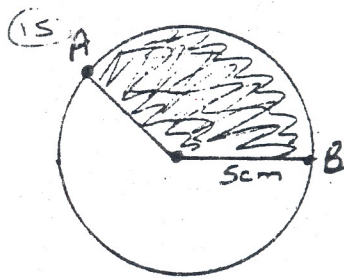




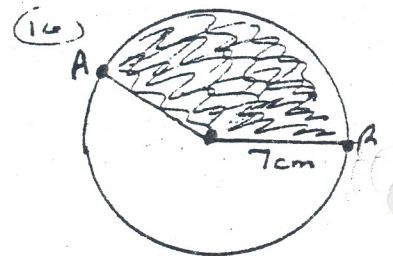
length  $\widehat{AB}$  = \_\_\_\_\_ cm  
 Area of Sector = \_\_\_\_\_



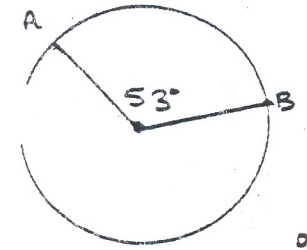
length  $\widehat{AB}$  = \_\_\_\_\_ cm  
 Area of Sector = \_\_\_\_\_



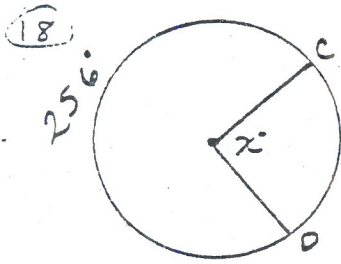
length  $\widehat{AB}$  = \_\_\_\_\_ cm  
 Area of Sector = \_\_\_\_\_



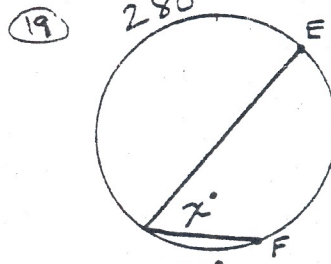
length  $\widehat{AB}$  = \_\_\_\_\_ cm  
 Area of Sector = \_\_\_\_\_



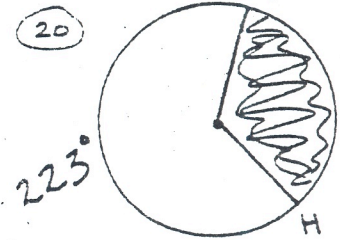
$m\widehat{AB}$  = \_\_\_\_\_



$x^\circ$  = \_\_\_\_\_  
 $m\widehat{CD}$  = \_\_\_\_\_



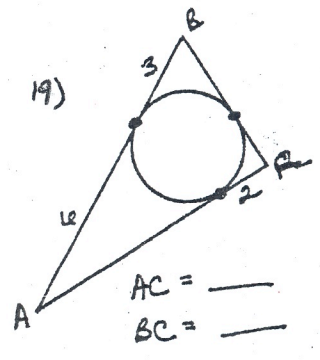
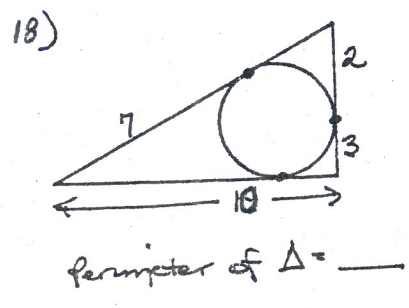
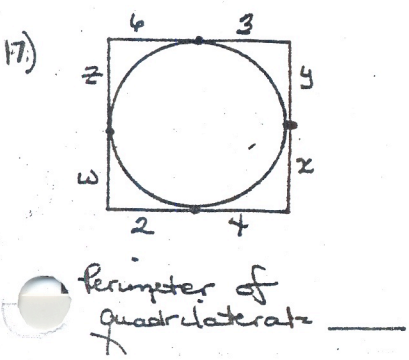
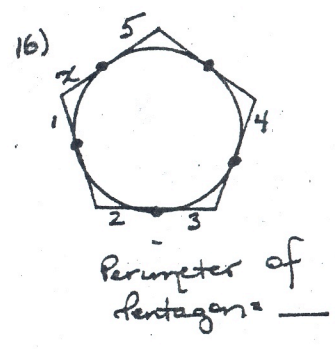
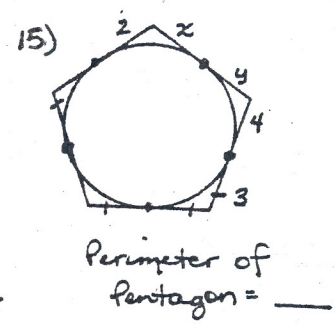
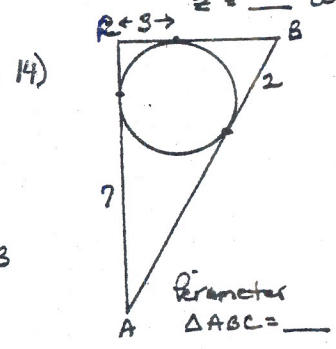
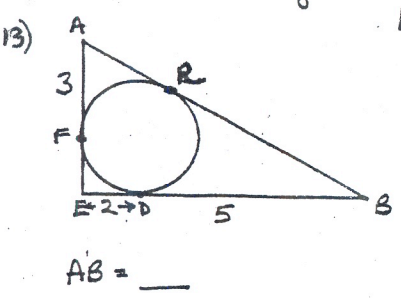
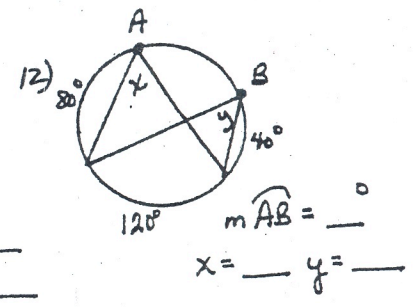
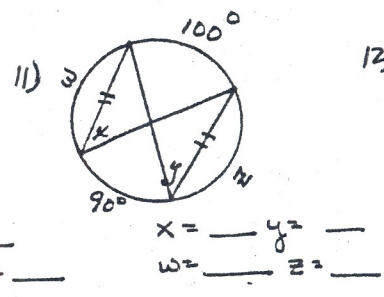
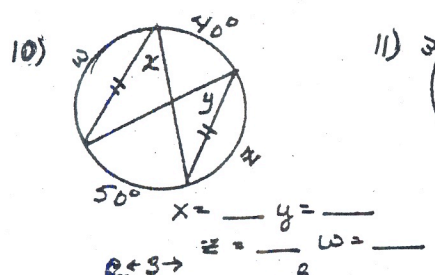
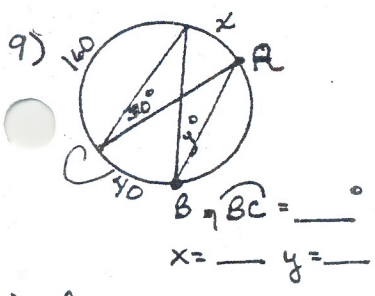
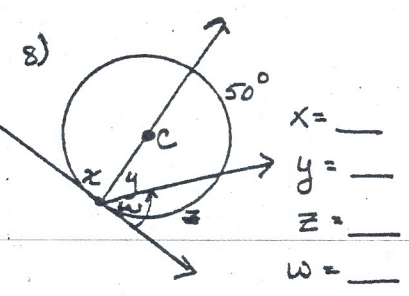
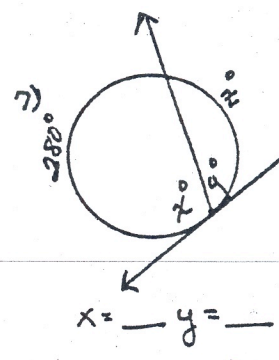
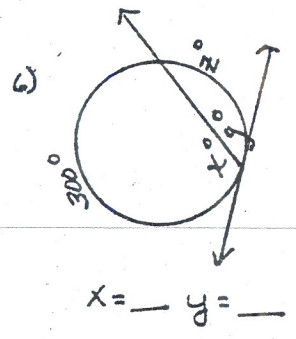
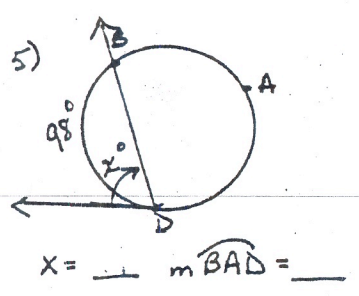
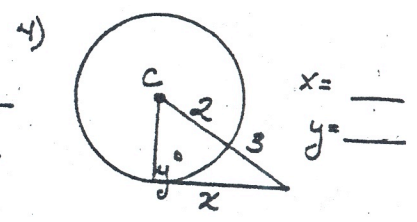
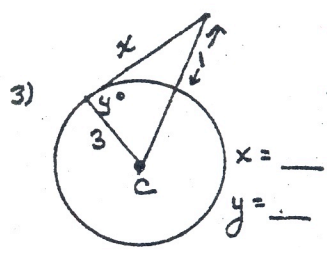
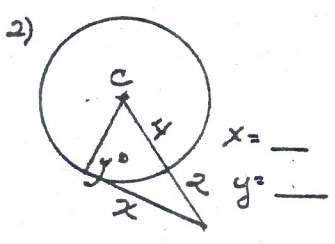
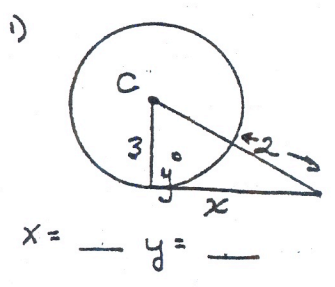
$x^\circ$  = \_\_\_\_\_  
 $m\widehat{EF}$  = \_\_\_\_\_

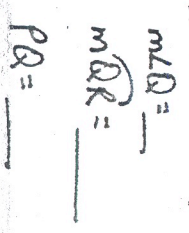
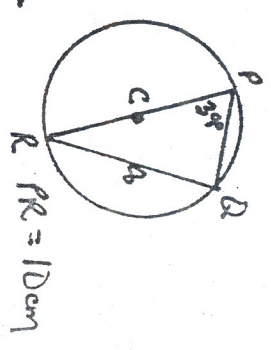
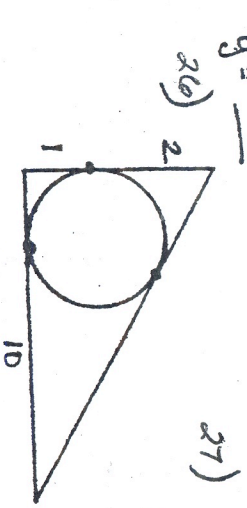
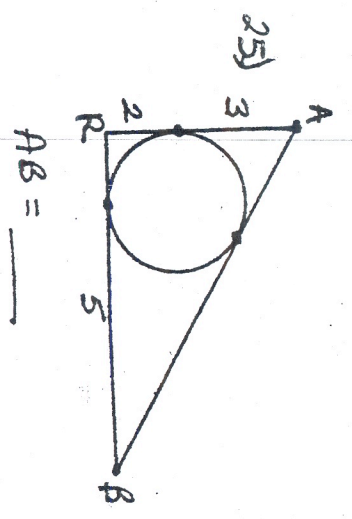
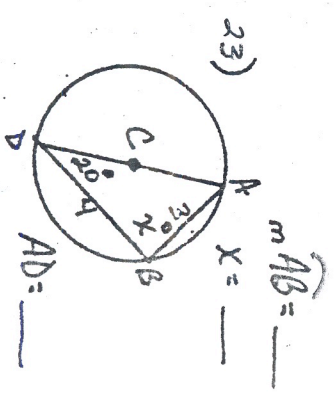
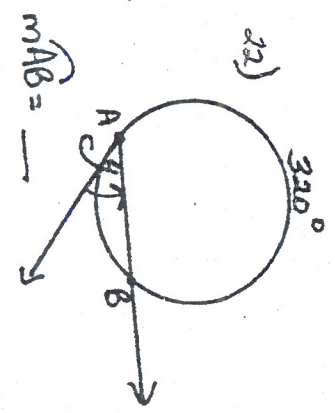
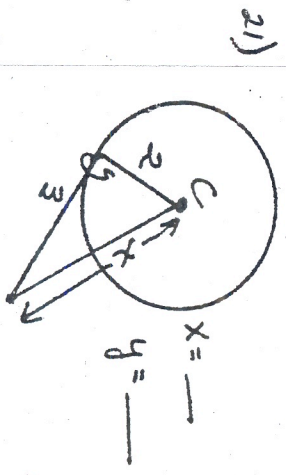
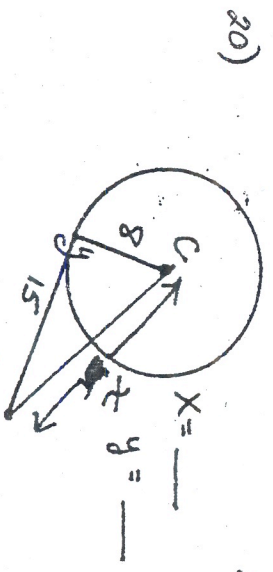


Diameter = 10 cm  
 $m\widehat{GH}$  = \_\_\_\_\_  
 Area of Sector = \_\_\_\_\_

Find the indicated arc, segment or angle measure:

⊙C (C is the center!)







Circles - Angles, Arcs, Chords

Name \_\_\_\_\_ Bell \_\_\_\_\_

Find indicated measures, lengths or circumferences: Given:  $\odot P$

1)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

2)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$   $z = \underline{\hspace{2cm}}$

3)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$   $z = \underline{\hspace{2cm}}$   $a = \underline{\hspace{2cm}}$

4)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

5)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

6)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$   $z = \underline{\hspace{2cm}}$

7)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

8)   
 approx  $\rightarrow$  Circumference  $\approx \underline{\hspace{2cm}}$   
 exact  $\rightarrow \widehat{AB} = \underline{\hspace{2cm}}$  cm  $\widehat{ADB} = \underline{\hspace{2cm}}$  cm  
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$   $z = \underline{\hspace{2cm}}$   $w = \underline{\hspace{2cm}}$

9)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$   $z = \underline{\hspace{2cm}}$   $w = \underline{\hspace{2cm}}$

10)   
 $x = \underline{\hspace{2cm}}$

11)   
 $x = \underline{\hspace{2cm}}$   $y = \underline{\hspace{2cm}}$

12)   
 $AB = \underline{\hspace{2cm}}$

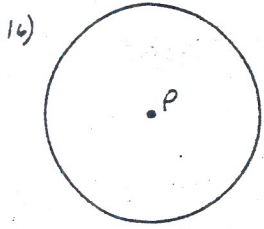
13)   
 write an equation first!  
 $\widehat{ABC} = \underline{\hspace{2cm}}$   
 $\angle ABC = \underline{\hspace{2cm}}$   $m\widehat{AB} = \underline{\hspace{2cm}}$   
 $\angle A = \underline{\hspace{2cm}}$   $\angle C = \underline{\hspace{2cm}}$   $m\widehat{BC} = \underline{\hspace{2cm}}$

14)   
 answer:  $\underline{\hspace{2cm}}$

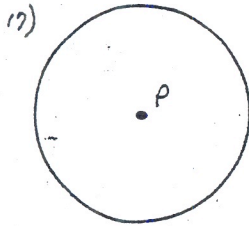
15)   
 answer:  $\underline{\hspace{2cm}}$

14-18  
 follow directions  
 on back of  
 sheet.

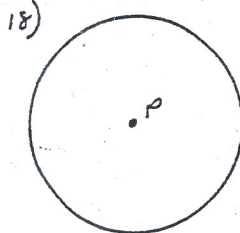
Circles - Angles, Arcs, Chords



answer: \_\_\_\_\_



answer: \_\_\_\_\_

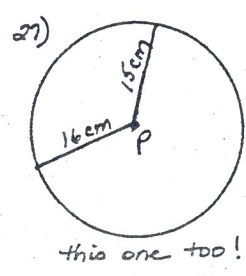
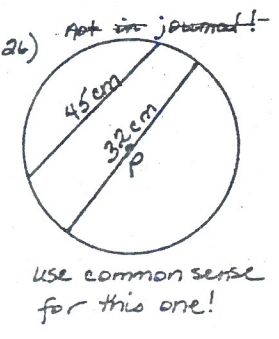
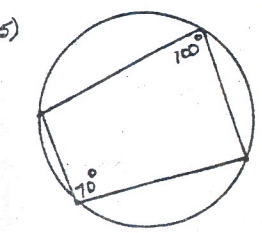
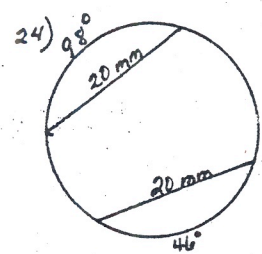
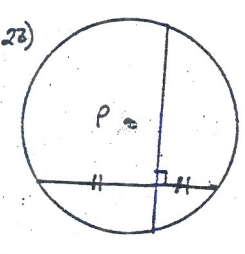
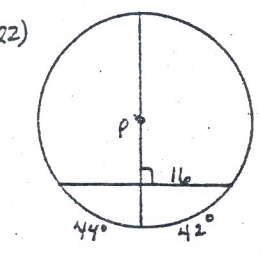
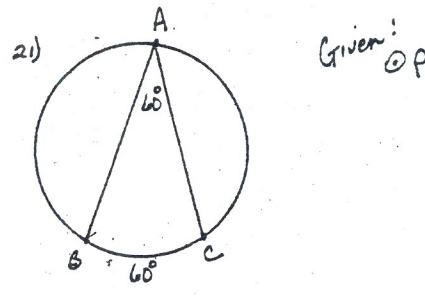
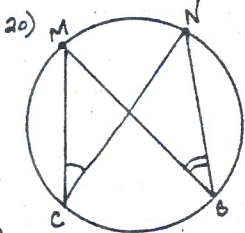
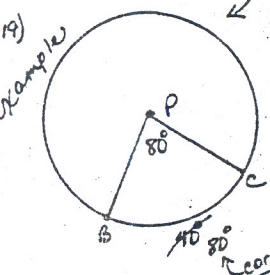


answer: \_\_\_\_\_

Problems 14 - 18

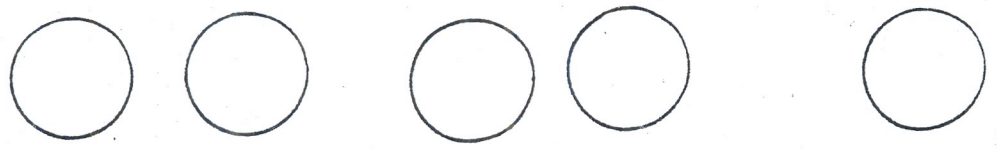
14. A chord which measures 30 cm is 6 cm from the center of a circle. *Find the length of the radius.*
15. *Find the length of a chord* that is 5 inches from the center of a circle with a radius of 13 inches.
16. A radius of a circle is 17 cm. and a chord is 30 cm. long. *Find the distance from the center of the circle to the chord.*
17. A chord has length 24 cm. and the radius of the same circle is 50 cm. *Find the distance from the center of the circle to the chord.*
18. *Find the length of the radius* if a chord measures 18 mm. and the distance from the chord to the center is 15 mm.

Each of the following contains a mistake. Correct it, then write an explanation to justify your correction using a theorem from your journal. Example sentence: "The measure of  $\widehat{BC}$  should be 80 degrees because the central angle is equal to its intercepted minor arc." (#19)

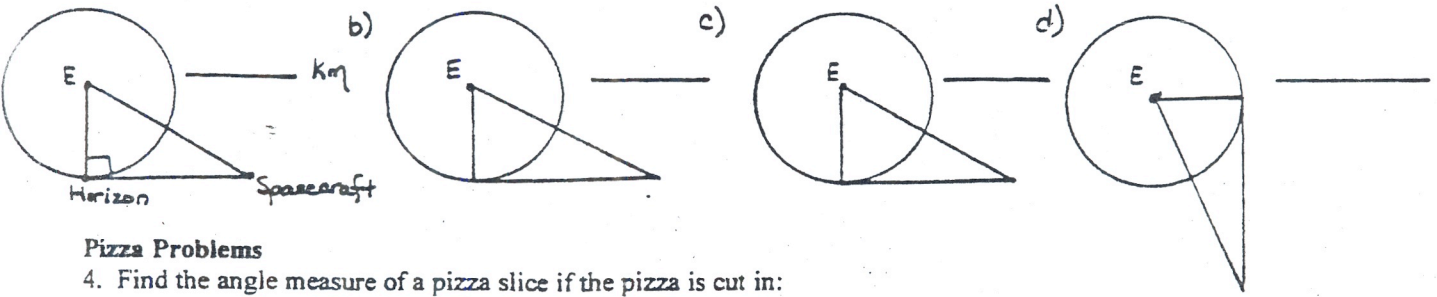


**Tangent & Secant Problems**

1. Define: Common Tangent
2. Draw:
  - a. Common internal tangents
  - b. Common external tangents
  - c. Circumscribed quadrilateral

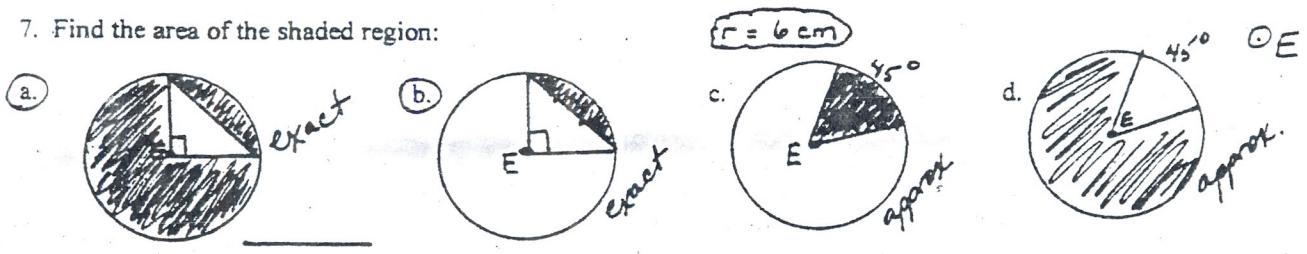


3. For these problems, **label the drawing and find the distance between the object and the horizon.**  
 Given: the radius of the earth is 6400 km. Round your answer to the nearest tenth of a kilometer.  $\odot E$ 
  - a. a spacecraft is 2000 km above the earth's surface.
  - b. the altitude of a satellite is 1000 km
  - c. the shuttle is 1500 km high
  - d. the Starship Enterprise is 3000 km above the earth



**Pizza Problems**

4. Find the angle measure of a pizza slice if the pizza is cut in:
  - a. 3 slices
  - b. 4 slices
  - c. 6 slices
  - d. 12 slices
  - e. 20 slices
5. Find the area of a pizza if:
  - a. radius = 6 inches (exact)
  - b. diameter = 10 inches (approximate)
  - c. radius = 4 inches (approximate)
  - d. diameter = 16 inches (exact)
6. Find the area of each pizza slice if the pizza has radius of 6 inches and has an angle of: (exact answers only)
  - a. 30 degrees
  - b. 40 degrees
  - c. 120 degrees
  - d. 90 degrees
  - e. 80 degrees
7. What do we call this section of a pizza in geometry?



**Good Concepts to Memorize !!!**

Formulas: Circumference =  $\pi d$  or  $2\pi r$     Arc Length =  $(\text{arc degree}/360) 2\pi r$     Area of a circle =  $\pi r^2$     Area of a Sector =  $(\text{arc degree}/360) \pi r^2$     Area of triangle =  $\frac{1}{2}bh$

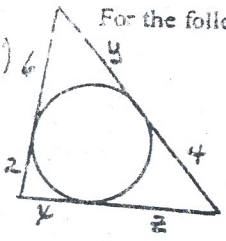
Angles: Vertex at center: angle = intercepted arc    Vertex on circle: angle = half the arc  
 Vertex in circle: angle = half (sum of arcs)    Vertex outside circle: angle = half (difference of arcs)

Tangents: **Tangent intersecting a radius is always perpendicular.**  
**Tangent segments intersecting outside the circle are congruent.** (ice cream cone problems)

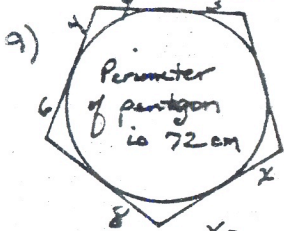
Segments: Intersecting inside the circle: product of parts of one segment = product of parts of the other  
 Intersecting outside the circle:  
 Two secants: (whole secant)(outside part) = (whole secant)(outside part)  
 Tangent and secant: (whole secant)(outside part) = (whole tangent segment)<sup>2</sup>



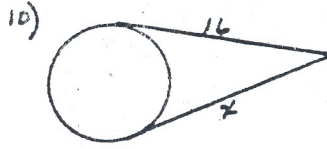
For the following problems, find each indicated arc, angle or segment measure



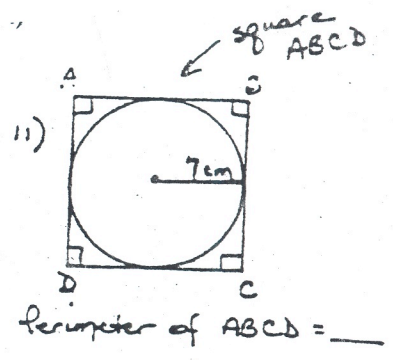
$x = \underline{\hspace{1cm}}$   $y = \underline{\hspace{1cm}}$   $z = \underline{\hspace{1cm}}$



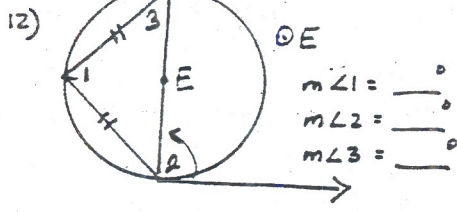
$x = \underline{\hspace{1cm}}$



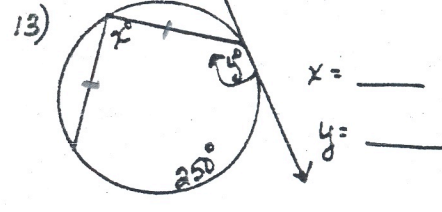
$x = \underline{\hspace{1cm}}$



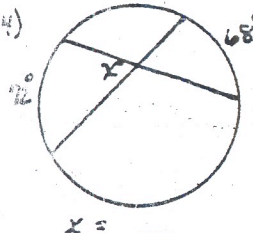
Perimeter of ABCD =  $\underline{\hspace{1cm}}$



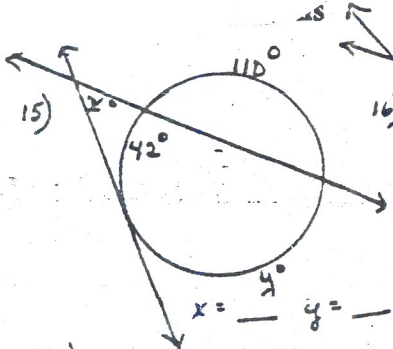
$m\angle 1 = \underline{\hspace{1cm}}^\circ$   
 $m\angle 2 = \underline{\hspace{1cm}}^\circ$   
 $m\angle 3 = \underline{\hspace{1cm}}^\circ$



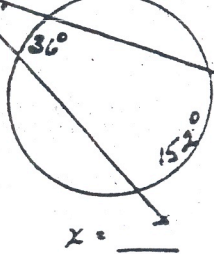
$x = \underline{\hspace{1cm}}$   
 $y = \underline{\hspace{1cm}}$



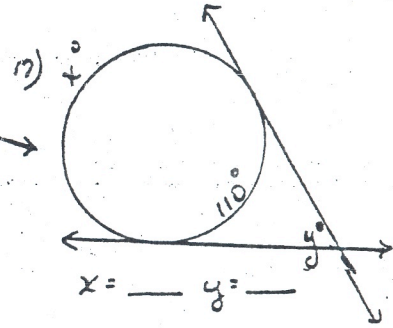
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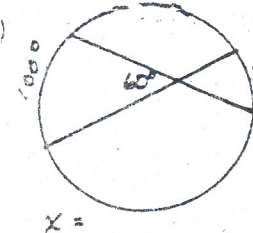
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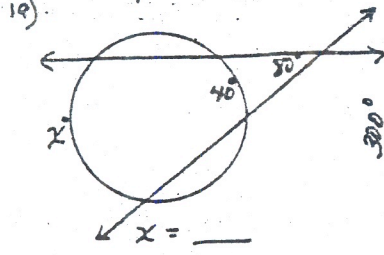
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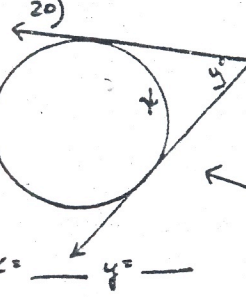
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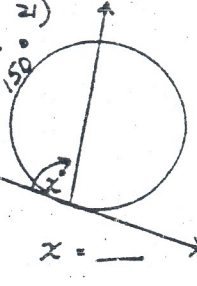
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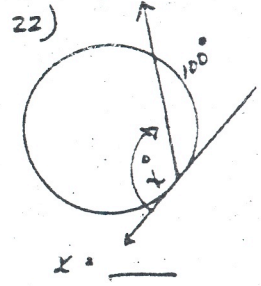
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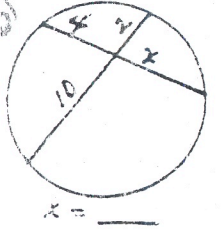
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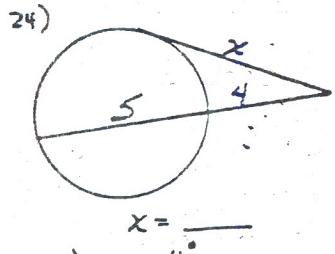
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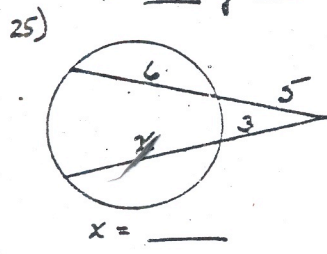
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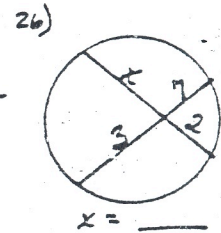
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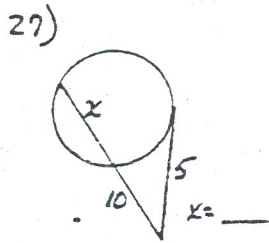
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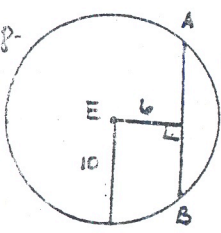
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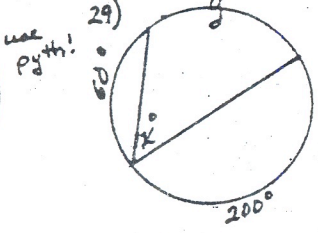
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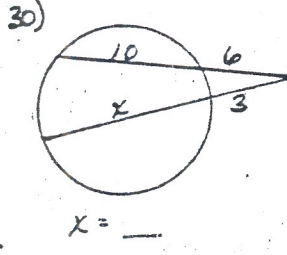
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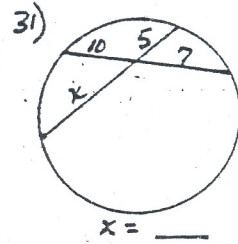
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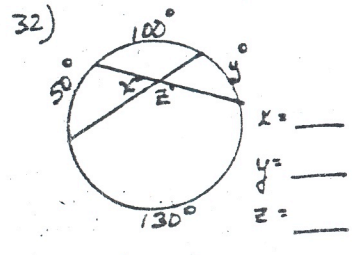
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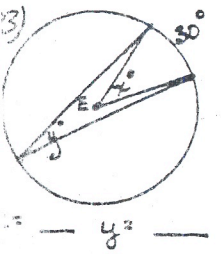
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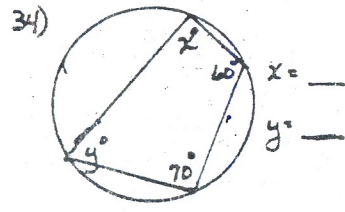
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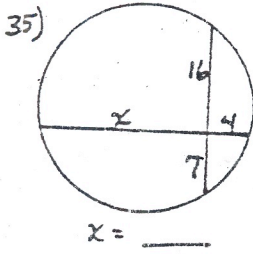
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 $y = \underline{\hspace{1cm}}$   
 $z = \underline{\hspace{1cm}}$



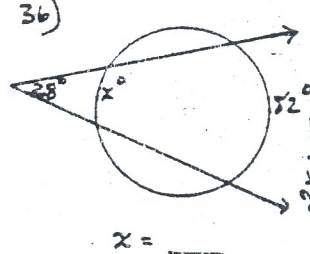
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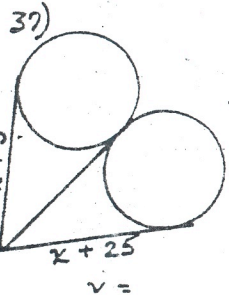
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 $y = \underline{\hspace{1cm}}$



$x = \underline{\hspace{1cm}}$



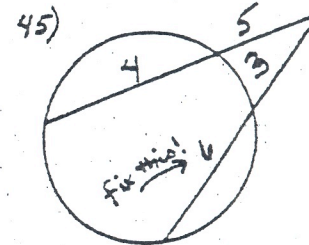
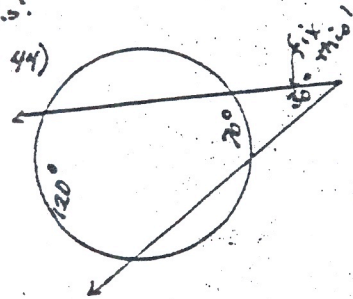
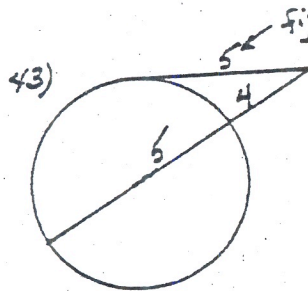
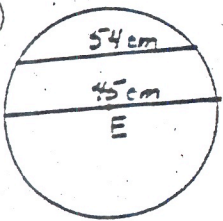
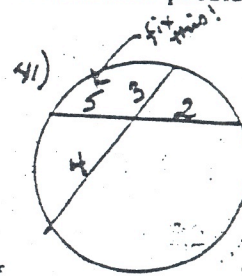
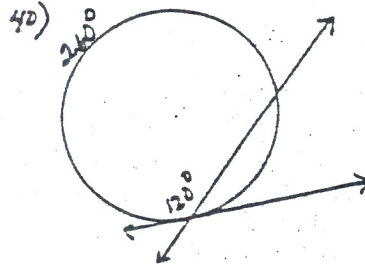
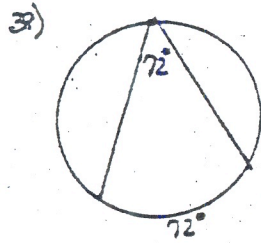
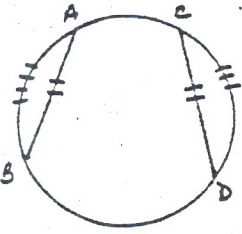
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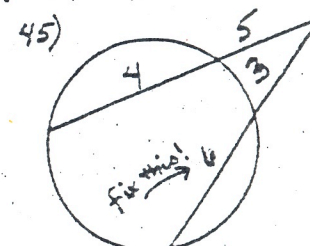
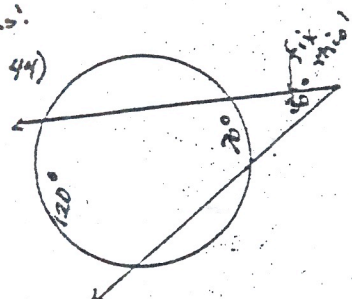
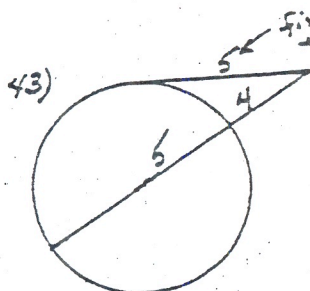
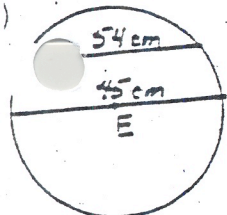
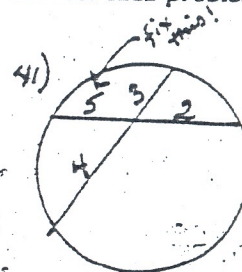
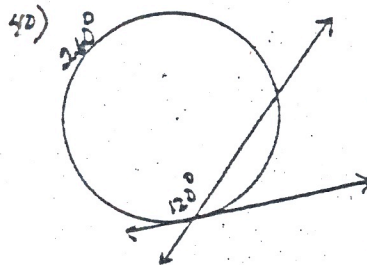
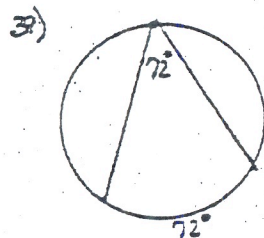
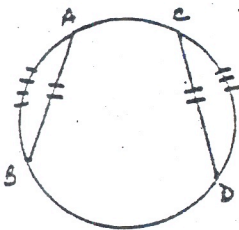
$x = \underline{\hspace{1cm}}$   
 $y = \underline{\hspace{1cm}}$   
 $z = \underline{\hspace{1cm}}$



Each of the following problems have been done incorrectly by some of my former students. Correct each problem and write a *complete sentence* justifying your answer using a journal entry.



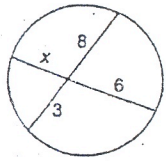
Each of the following problems have been done incorrectly by some of my former students. Correct each problem and write a *complete sentence* justifying your answer using a journal entry.



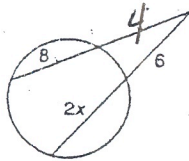
# Special Segments in a Circle Secants, Tangents, and Angle Measures

Sheet 9.5  
27 7

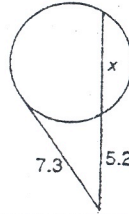
Find the value of  $x$  to the nearest tenth. Assume segments that appear tangent to be tangent.



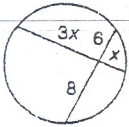
2.



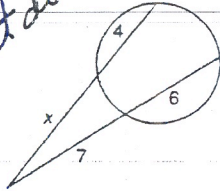
3.



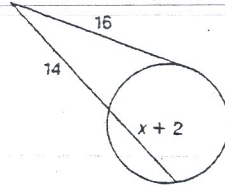
4.



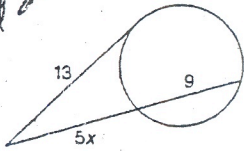
*\* Don't do*



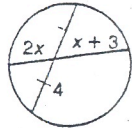
6.



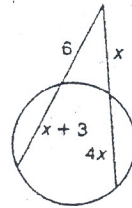
*\* Don't do*



*\* Don't do*

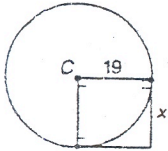


*\* Don't do*

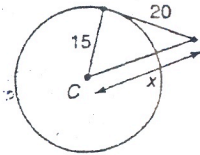


For each  $\odot C$ , find the value of  $x$ . Assume that segments that appear to be tangent are tangent.

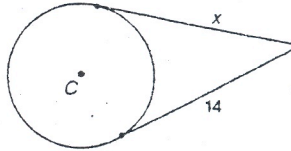
1.



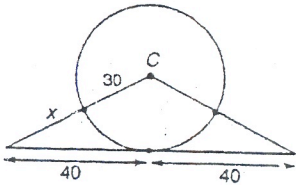
2.



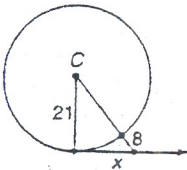
3.



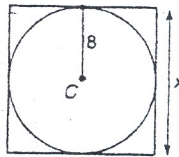
4.



5.

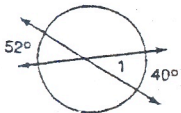


6.

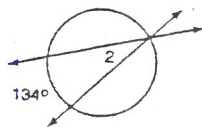


Find the measure of each numbered angle.

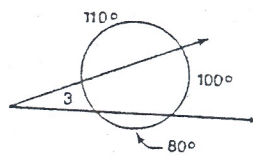
1.



2.



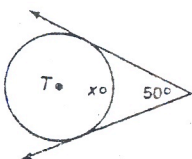
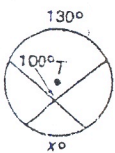
3.



Given  $\odot T$ , find the value of  $x$ .

*\* Think!!*

4.



6.

