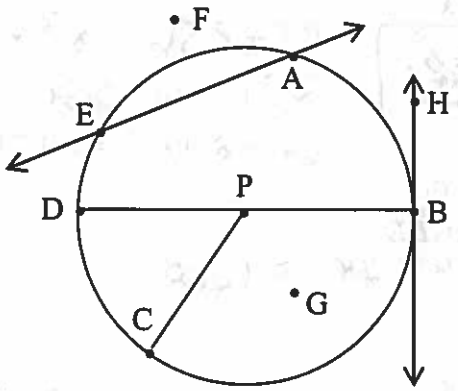
Honors Geometry
Chapter 10 Review Packet II

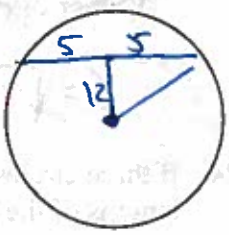
Name Key Period

Use the diagram to the right to answer each of the following.



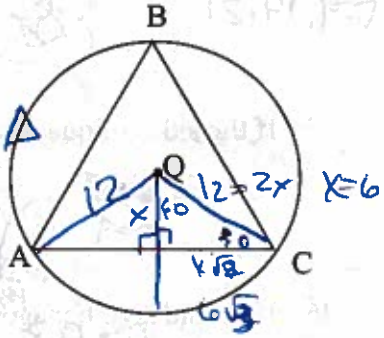
1. Name the center of the circle. P
2. Name the circle. ⊙P
3. Name three radii of the circle. $\overline{PC}, \overline{PD}, \overline{PB}$
4. Name the diameter of the circle. $\overline{BD}$
5. Name a chord of the circle. $\overline{AE}, \overline{BD}$
6. Name a tangent of the circle. $\overleftrightarrow{BH}$
7. Name a secant of the circle. $\overleftrightarrow{EA}$
8. Name two points in the interior of the circle. P & G
9. Name two points in the exterior of the circle. F & H
10. Name five points that lie on the circle. E, A, D, C, B
11. Name a point of tangency. B
12. Name a central angle. ∠CPD, ∠BPC
13. Name a semicircle: $\overset{\frown}{BCD}, \overset{\frown}{BAD}$
14. Name two minor arcs. $\overset{\frown}{AE}$ & $\overset{\frown}{CD}$
15. Name two major arcs. $\overset{\frown}{ABC}, \overset{\frown}{ABD}, \ldots$

16. Given a chord of a circle is 10 inches long and is 12 inches from the center of the circle. Find the length of the radius.



triple! r = 13in

17. Given an equilateral triangle is inscribed in ⊙Q with radius measuring 12 cm.



a. Find the length of each side of the equilateral triangle.

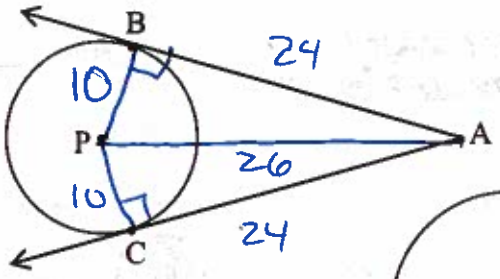
30-60-90 △

$12\sqrt{3}$ u

b. Find the distance from each side of the triangle to the center of the circle.

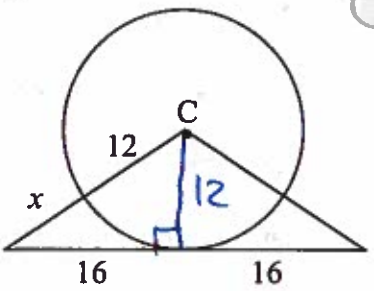
6 cm

18. In the figure, both AC and AB are tangents to $\odot P$.
Given: $PB = 10$
$AP = 26$
Find: AC $= 24$ u

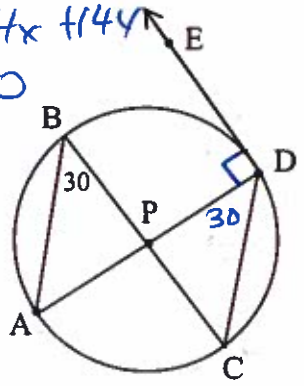


19. Given: $\odot C$
Find: x

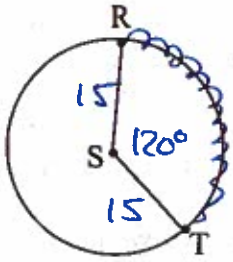
$12^2 + 16^2 = (x+12)^2$
$144 + 256 = x^2 + 24x + 144$
$x^2 + 24x - 256 = 0$
$(x-8)(x+32) = 0$
$x = 8, -32$



20. Given: $\odot P$
Tangent DE
Find: $m\angle EDC$ $= 120°$

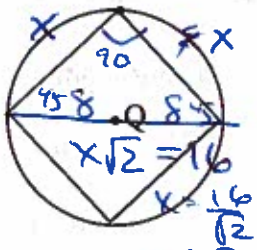


21. Given: $\odot S$
$m\angle RST = 120$
$ST = 15$
Find: a) length of $\overset{\frown}{RT}$ b) area of sector RST



$\ell_{\overset{\frown}{RT}} = \frac{120}{360} 2\pi(15) = 10\pi$ u $\quad A_{RST} = \frac{120}{360}\pi 15^2 = 75\pi$ u^2

22. A square is inscribed in $\odot Q$. The diameter of the circle is 16 cm. Find the length of the side of the square. $8\sqrt{2}$ cm



$x = \frac{16}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$
$x = \frac{16\sqrt{2}}{2} = 8\sqrt{2}$

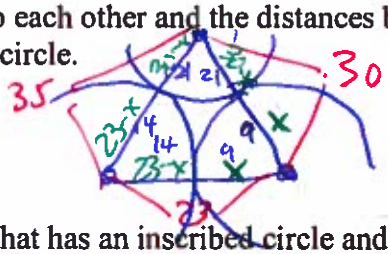
23. Find the area of a quadrilateral inscribed in a triangle with sides of 14, 16, 18, and 20.
Brahmagupta!

$S = \frac{14+16+18+20}{2} = \frac{68}{2} = 34$

$A = \sqrt{20(18)(16)(14)} = \sqrt{80{,}640} = 48\sqrt{35}$ u^2

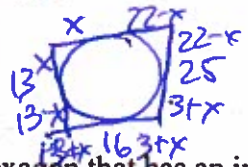
24. If three circles are tangent to each other and the distances between the centers is 30, 23, and 37, find the lengths of the radii for each circle.

$r = 9, 14, 21$



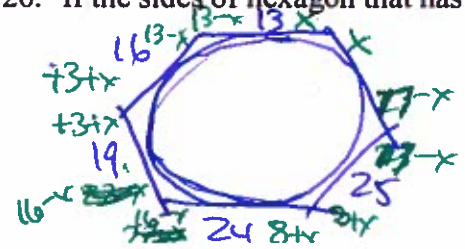
$23 - x + 30 - x = 35$
$53 - 2x = 35$
$-2x = -18$
$x = 9$

25. If the sides of quadrilateral that has an inscribed circle and sides of 13, 16, and 25, find the remaining side.



$x + 22 - x = 22$ u

26. If the sides of hexagon that has an inscribed circle and sides of 13, 16, 19, 24, and 25, find the 6th side.



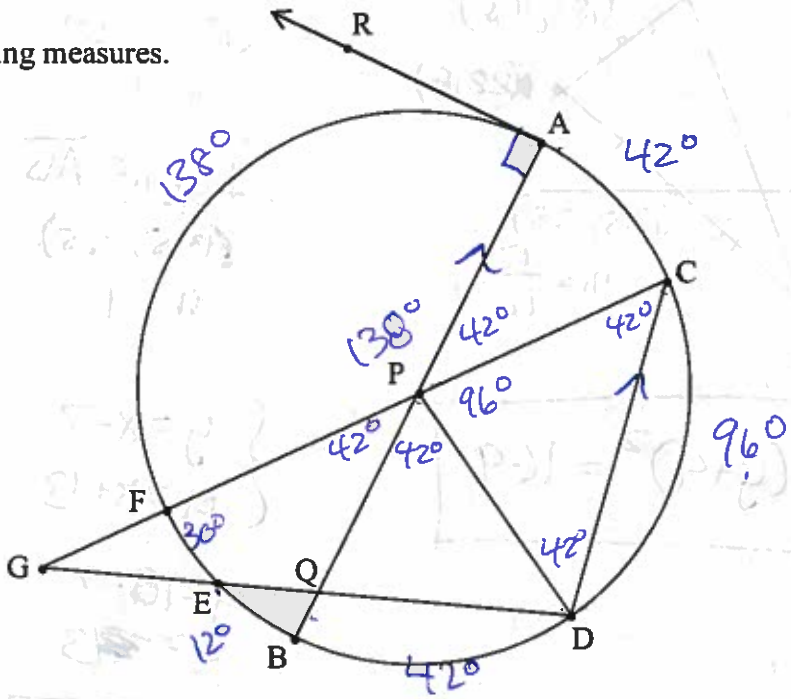
6^{th} side $= x + 27 - x$
$= 27$ u

27. In $\odot P$, $AB \parallel CD$, AR is tangent to $\odot P$ at A.

$m\overset{\frown}{BD} = 42^\circ$

$m\overset{\frown}{BE} = 12^\circ$

Find each of the following measures.



a.	$m\angle BPD$	42°	g.	$m\overset{\frown}{CD}$	96°
b.	$m\angle APC$	42°	h.	$m\overset{\frown}{FB}$	42°
c.	$m\angle BPF$	42°	i.	$m\overset{\frown}{FE}$	30°
d.	$m\overset{\frown}{AF}$	138°	j.	$m\angle EDC$	105°
e.	$m\angle FCD$	42°	k.	$m\angle G$	33°
f.	$m\overset{\frown}{AC}$	42°	l.	$m\angle EQB$	75°
			m.	$m\angle RAB$	90°

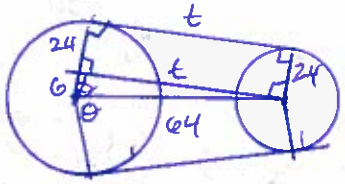
28. Find the belt length need for 2 pulleys with radii of 24 and 30 cm that are 10 cm apart.

$l_{belt} = 2t + Arc_{Big} + Arc_{small}$

$= 2(63.71813) + 99.5805 + 70.89161\ldots$

$= 298.2889$

≈ 298 cm



$t^2 + 6^2 = 64^2$

$t^2 + 36 = 4096$

$t^2 = \sqrt{4060}$

$t = 63.71813$

$\cos\theta = \frac{6}{64}$

$\theta = 84.6206\ldots$

$2\theta = 169.24124\ldots$

$Arc_{Big} = \frac{\theta}{360} 2\pi r$

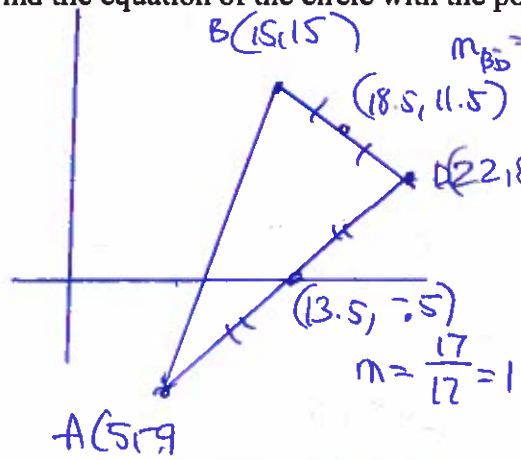
$= \frac{190.7588}{360} 2\pi(30)$

$= 99.58105\ldots$

$Arc_{small} = \frac{169.24125}{360} 2\pi 24$

$= 70.89161$

29. Find the equation of the circle with the points (15, 15), (22, 8), and (5, -9).



$m_{BD} = \frac{7}{-7} = -1$

$\perp$ bis of $\overline{BD}$ $\quad y - 11.5 = 1(x - 18.5)$

(18.5, 11.5) $\quad y = x - 7$

$m = 1$

$\perp$ bis of $\overline{AD}$ $\quad y + .5 = -1(x - 13.5)$

(13.5, -.5) $\quad y = -x + 13$

$m = -1$

$$\begin{cases} y = x - 7 \\ y = -x + 13 \end{cases}$$

$x - 7 = -x + 13$

$2x = 20$

$x = 10$

$y = 10 - 7$

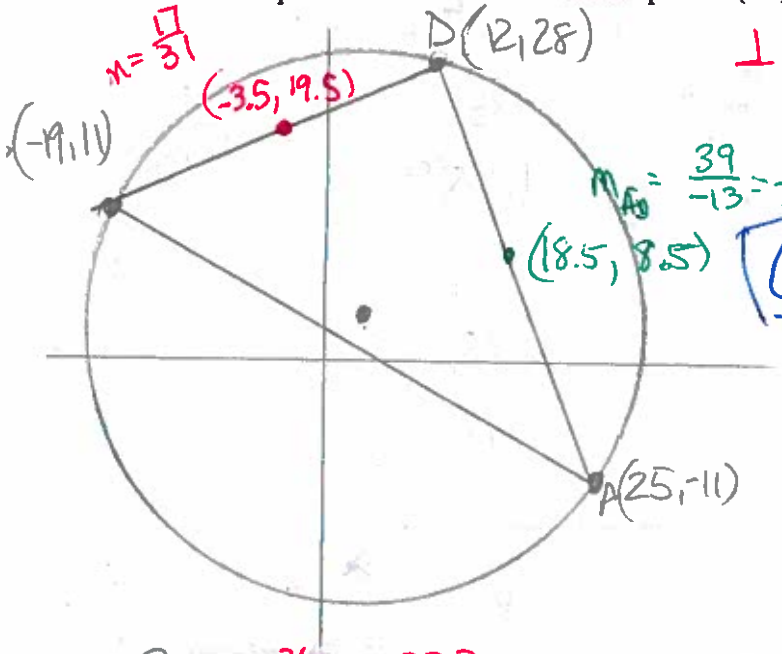
$y = 3$

center (10, 3)

$$(x-10)^2 + (y-3)^2 = 169$$

using (15, 15), $r = \sqrt{25 + 144} = \sqrt{169} = 13$ radius

30. Find the equation of the circle with the points A(25, -11), B(-19, 11), and D(12, 28).



$m = \frac{17}{31}$

$\perp$ bis. of $\overline{BD}$ $\quad m = \frac{-31}{17}$

(-3.5, 19.5) $\quad y - 19.5 = \frac{-31}{17}\left(x + \frac{7}{2}\right)$

$y - \frac{39}{2} = \frac{-31}{17}x + \frac{-217}{34}$

$+\frac{39}{2} \qquad \frac{663}{34} + \frac{32}{2}$

$y = \frac{-31}{17}x + \frac{446}{34}$

$y = \frac{-31}{17}x + \frac{223}{17}$

$m_{AD} = \frac{39}{-13} = -3$

$(x-5)^2 + (y-4)^2 = 625$

$\perp$ bis of $\overline{AD}$ $\quad y - 8.5 = \frac{1}{3}(x - 18.5)$

(18.5, 8.5) $\quad y - 8.5 = \frac{1}{3}x - \frac{37}{6}$

$m = 1/3$ $\quad y - \frac{17}{2} = \frac{1}{3}x - \frac{37}{6}$

$+\frac{17}{2} \qquad +\frac{37}{6} \quad +\frac{17}{2}$

$y = \frac{1}{3}x + \frac{14}{6}$

$y = \frac{1}{3}x + \frac{7}{3}$

$$\begin{cases} y = \frac{-31}{17}x + \frac{223}{17} \\ y = \frac{1}{3}x + \frac{7}{3} \end{cases}$$

$$\begin{cases} 17y = -31x + 223 \\ 3y = x + 7 \\ x = 3y - 7 \end{cases}$$

$17y = -31(3y - 7) + 223$

$17y = -93y + 217 + 223$

$110y = 440$

$y = 4$

$x = 3(4) - 7 = 5$

C(5, 4)

$r = \sqrt{49 + 576} = \sqrt{625} = 25 = r$

& (12, 28)