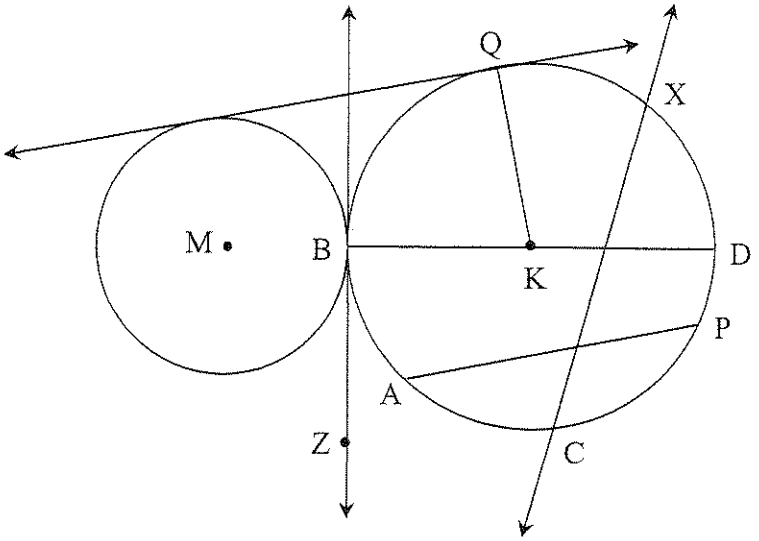
Geometry B
Chapter 10 Review

Name key
Date _____ Hour _____

Properties of Circles

1. Identify the line or segment in ⊙K or ⊙M that is best described by the term.



a. chord $\overline{AP}$, $\overline{XC}$, $\overline{BD}$

b. secant $\overleftrightarrow{XC}$

c. diameter $\overline{BD}$

d. radius $\overline{KQ}$, $\overline{KD}$, $\overline{KB}$

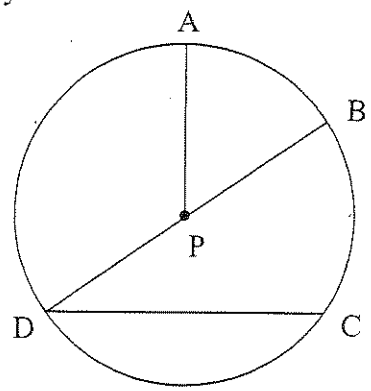
e. common internal tangent $\overleftrightarrow{BE}$

f. common external tangent $\overleftrightarrow{QF}$

g. all points of tangency B, Q, F

h. 2 perpendicular lines $\overleftrightarrow{BE} \perp \overline{BD}$
$\overline{KQ} \perp \overleftrightarrow{QF}$

2. Identify an angle or arc in ⊙P that is described by the term.



a. minor arc $\overset{\frown}{AB}$, $\overset{\frown}{AD}$, $\overset{\frown}{DC}$, $\overset{\frown}{BC}$, $\overset{\frown}{AC}$

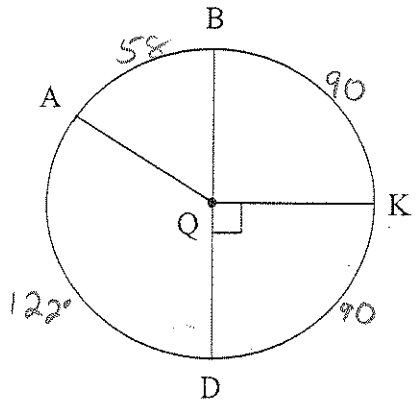
b. inscribed angle $\angle D$

c. central angle $\angle APB$, $\angle APD$

d. major arc $\overset{\frown}{ABD}$, $\overset{\frown}{BCA}$, $\overset{\frown}{BAC}$

e. semicircle $\overset{\frown}{BD}$

3. Find the measures in ⊙Q given that m $\overset{\frown}{AB}$ = 58°.



m∠AQB = 58°

m $\overset{\frown}{AD}$ = 122°

m $\overset{\frown}{AK}$ = 148°

m $\overset{\frown}{ABD}$ = 238°

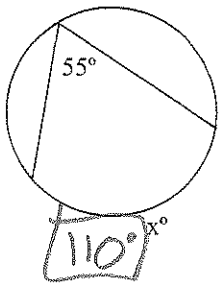
m $\overset{\frown}{ADK}$ = 212°

m $\overset{\frown}{ADB}$ = 302°

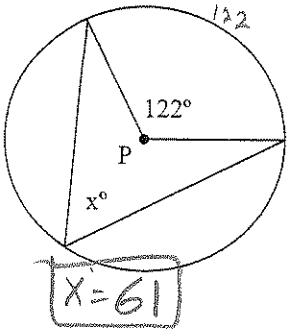
m∠AQK = 148°

m $\overset{\frown}{BAD}$ = 180°

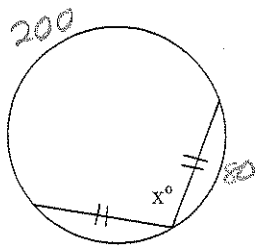
4. Find x, y, and/or z in each figure. P is the center if present.



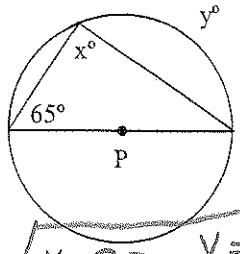
110°



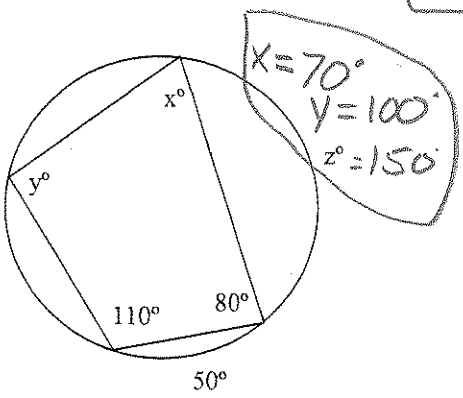
X=61



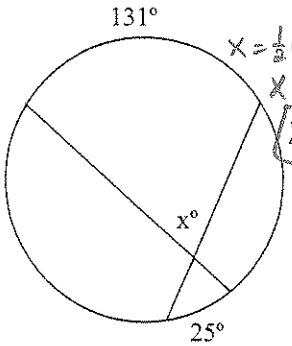
X=100



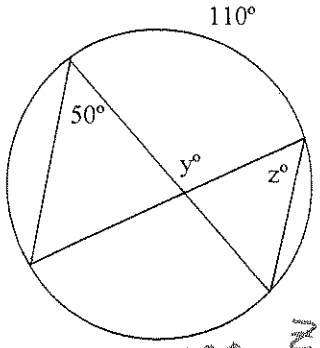
X=90 Y=130°



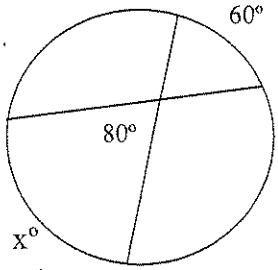
X=70°
Y=100°
z°=150°



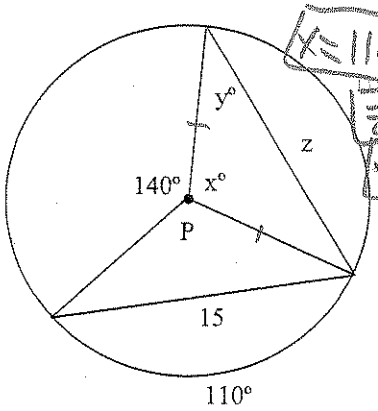
$x = \frac{1}{2}(131+25)$
$x = \frac{1}{2}(156)$
X=78



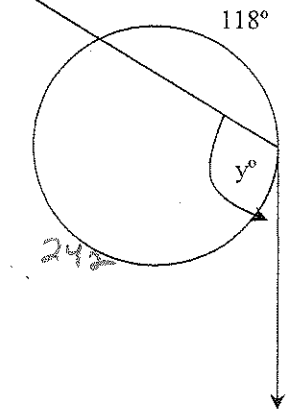
$y = \frac{1}{2}(110+100)$
$y = \frac{1}{2}(210)$
Y=105
Z=50



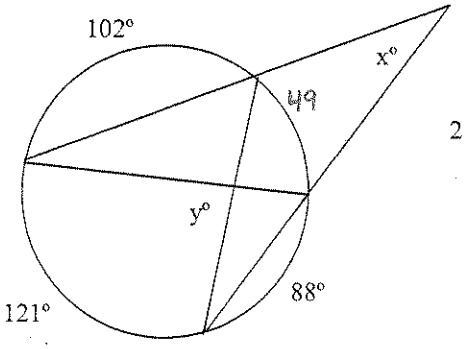
$80 = \frac{1}{2}(x+60)$
$160 = x+60$
X=100



X=110
Z=15
Y=35

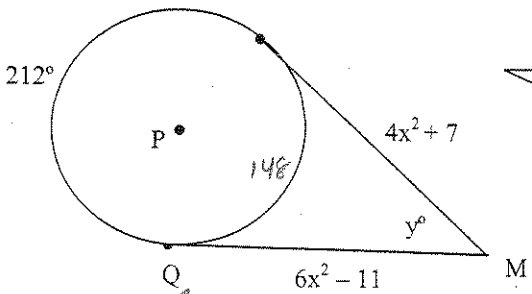


Y=121



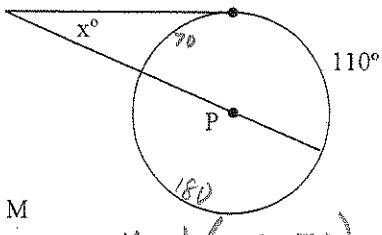
$x = \frac{1}{2}(121-49)$
$= \frac{1}{2}(72)$
X=36

$y = \frac{1}{2}(121+49)$
$y = \frac{1}{2}(170)$
Y=85



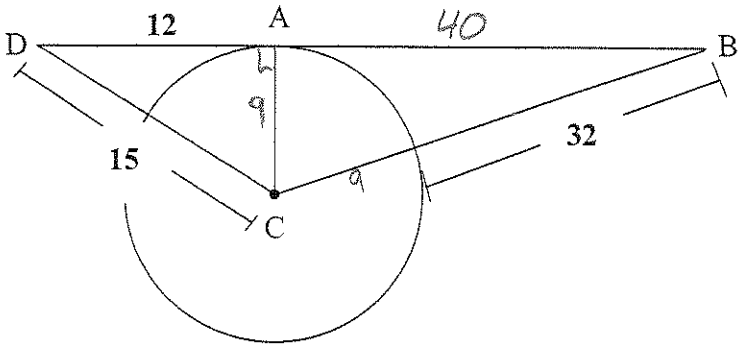
$y = \frac{1}{2}(212-148)$
$y = \frac{1}{2}(64)$
Y=32

$6x^2-11 = 4x^2+7$
$2x^2 = 18$
$x^2 = 9$
$x = \pm 3$
both



$x = \frac{1}{2}(110-70)$
$x = \frac{1}{2}(40)$
X=20

5. In the diagram below, $\overline{DB}$ is tangent to Circle C.



a. $\overline{CA}$ ⊥ $\overline{DB}$ at point A. (mark this in diagram)

b. Find the length of the radius.

$15^2 - 12^2 = r^2$

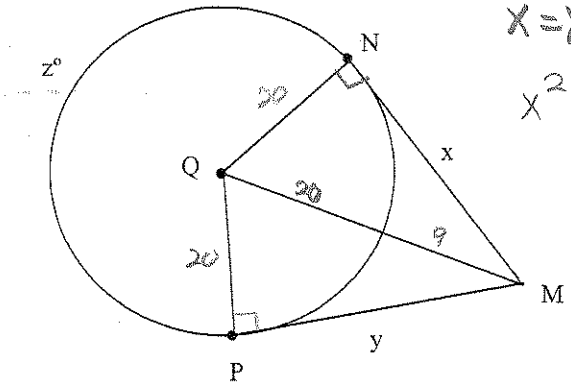
r = 9

c. Find the length of $\overline{AB}$.

$41^2 - 9^2 = AB^2$

AB = 40

6. MN and MP are tangent to circle Q with radius 20. QM = 29. Find x, y, and z.



x = y

$x^2 + 20^2 = 29^2$

$x = \sqrt{29^2 - 20^2}$

x = y = 21

$\sin \angle PMQ = \frac{20}{29}$

$m\angle PMQ = \sin^{-1}\left(\frac{20}{29}\right)$

$m\angle PMQ = 43.6°$

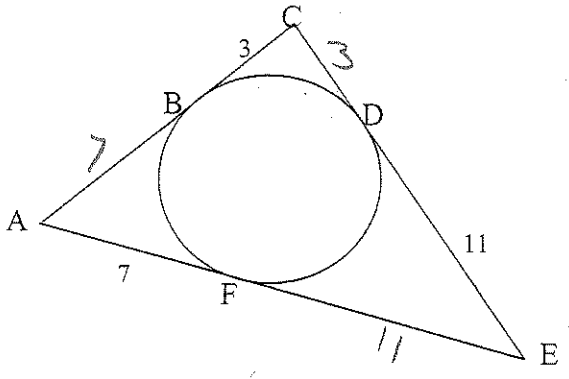
$m\angle PMN = 87.2°$

$87.2 = \frac{1}{2}(z - (360 - z))$

$174.4 = 2z - 360$

z = 267.2

7. The sides of the triangle below are tangent to the circle. Find the perimeter of the triangle.



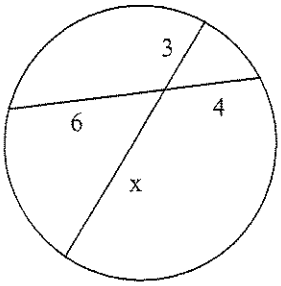
P = 10 + 14 + 18

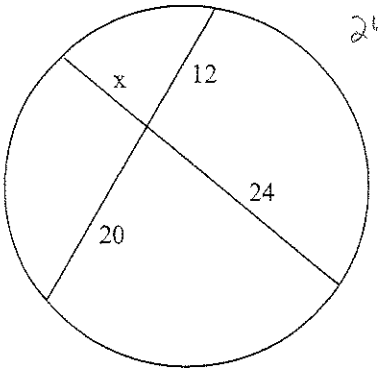
P = 42

8. Find x, the length of missing segments.

$3x = 24$

$x = 8$





$24x = 12 \cdot 20$

$24x = 240$

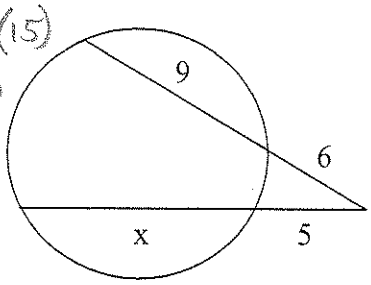
$x = 10$

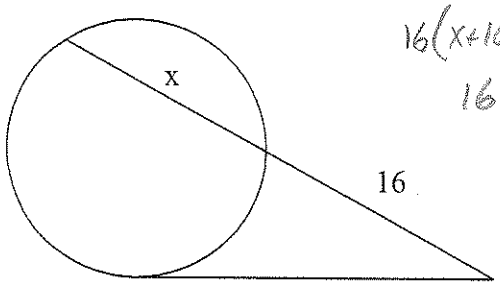
$5(x+5) = 6(15)$

$5x + 25 = 90$

$5x = 65$

$x = 13$



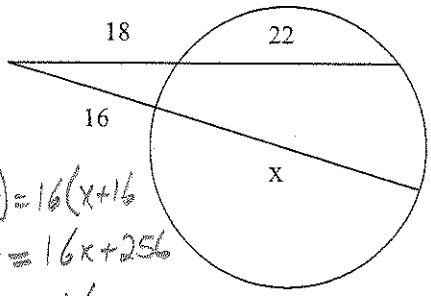


24

$16(x+16) = 24^2$

$16x + 256 = 576$

$x = 20$

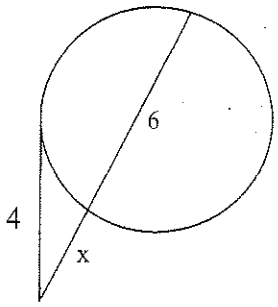


$18(40) = 16(x+16)$

$720 = 16x + 256$

$464 = 16x$

$x = 29$



$x(x+6) = 4^2$

$x^2 + 6x = 16$

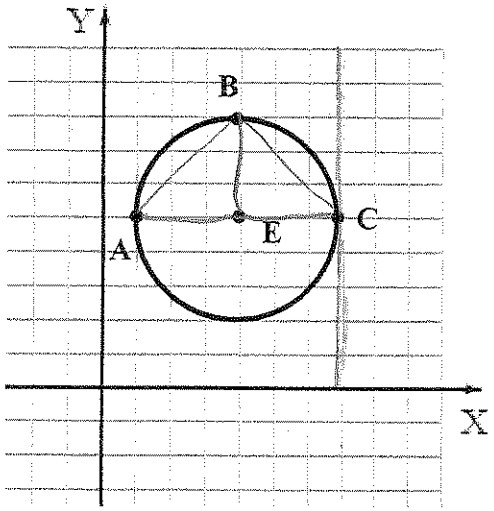
$x^2 + 6x - 16 = 0$

$(x+8)(x-2) = 0$

$x = -8$

$x = 2$

9. Study Circle E in the coordinate plane below.



a. Give the coordinates of the center of the circle. $(4, 5)$

b. Give the length of the radius Circle E. (Draw in radii $\overline{AE}$, $\overline{BE}$, and $\overline{CE}$.) 3

c. Find the length of chord $\overline{AB}$ and chord $\overline{CB}$. (Draw them.)

$AB = 3\sqrt{2}$ $\quad CB = 3\sqrt{2}$

d. Give the degree measure of arcs $\overset{\frown}{AB}$ and $\overset{\frown}{CB}$

$m\overset{\frown}{AB} = m\overset{\frown}{CB} = 90$

e. Sketch a tangent that passes through C.

10. Write the standard equation of the circle.

a. Center (0, 0), radius 9

$x^2+y^2=81$

b. Center (1, 3), radius 4

$(x-1)^2+(y-3)^2=16$

c. Center (–3, 0), radius 5

$(x+3)^2+y^2=25$

d. Center (0, 0), point on circle (3, –4) $r=5$

$x^2+y^2=25$

e. Center (–1, 4), diameter 20 $r=10$

$(x+1)^2+(y-4)^2=100$

f. Center (2, 3), diameter 30 $r=15$

$(x-2)^2+(y-3)^2=225$

11. Determine the diameter of the circle with the given equation.

a. $x^2 + y^2 = 100$

$d=20$

b. $(x - 12)^2 + (y + 5)^2 = 64$

$d=16$

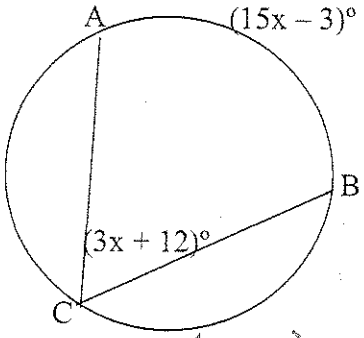
c. $(x - 2)^2 + (y - 9)^2 = 4$

$d=4$

d. $(x + 16)^2 + (y + 15)^2 = 81$

$d=18$

12. Find the value of x.



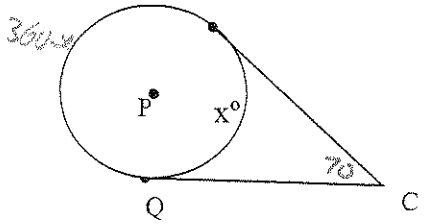
$3x+12=\frac{1}{2}(15x-3)$

$6x+24=15x-3$

$27=9x$

$3=x$

13. If $m\angle C = 70$, find x.



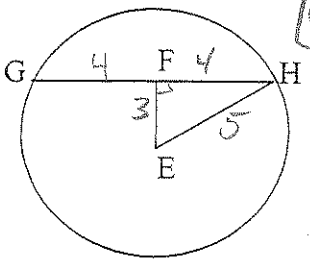
$70=\frac{1}{2}(360-x-x)$

$140=360-2x$

$2x=220$

$x=110°$

14. The radius is 5. EF = 3. Find GH



$GH=8$

$\triangle EFY$?