10.4 Homework Pg 463  #5, 6, 10-14, 16,17,22,23

**#1**



A
8
B    15    C
17

**#2**
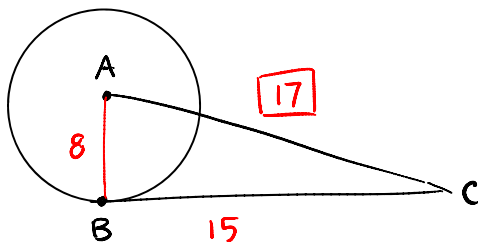


X
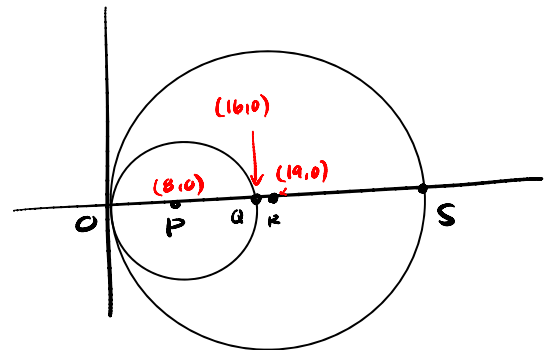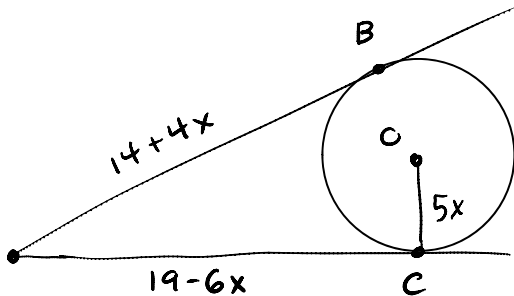6    10
Z    8    P
Y
$XY = 12$
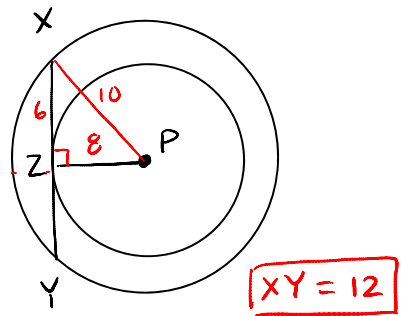
**#5**  $\odot P$ and $\odot R$ are internally tangent at O.

a. Find the coordinate of Q and S    (16,0)    (38,0)

b. Find the length of QR  [3]



(16,0)
(8,0)    (19,0)
O    P    Q R    S

**#6**



B
$14+4x$
O
$5x$
$19-6x$    C

$\overline{AB}$ and $\overline{AC}$ are tangents to $\odot O$

Find OC

$14+4x = 19-6x$          $OC = 5x$
$10x = 5$                $= 5\left(\frac{1}{2}\right)$
$x = \frac{1}{2}$              $= \boxed{2.5}$

**#10**



A    X    20
x    20-X
Q        B
23-X    20-X
P    11
D  23-X   -9+X    11-(20-X)
14   -9+X   C    11-20+X
14-(-9+x)    14        -9+X
23-X

$AD = x + 23 - x$
$= \boxed{23}$

**#11**



Q (4,9)
P(-2,5)
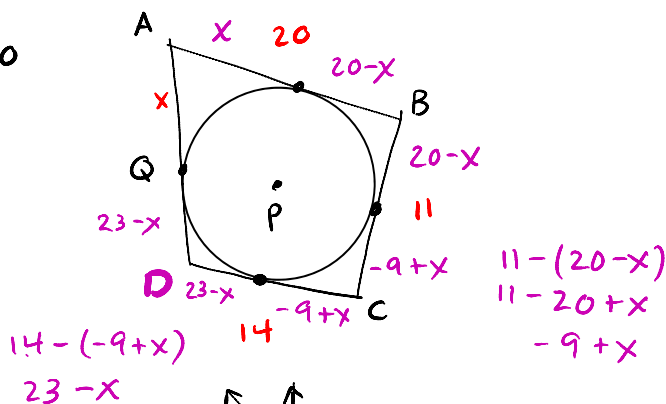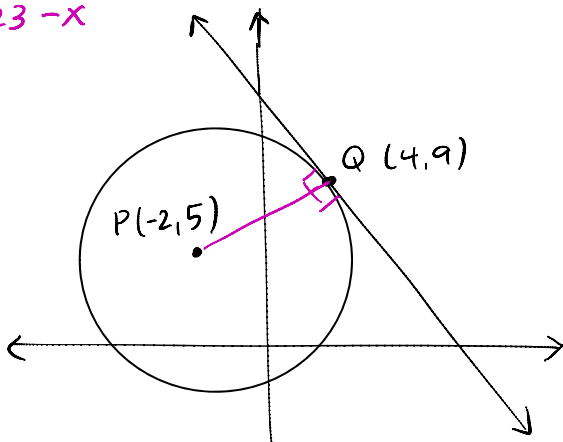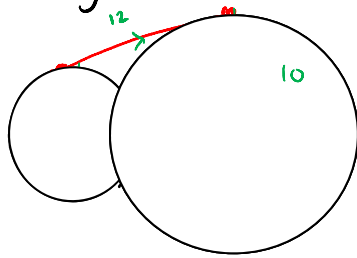
$\text{Slope}_{PQ} = \dfrac{9-5}{4+2} = \dfrac{4}{6} = \dfrac{2}{3}$

$\perp \text{ slope} = -\dfrac{3}{2}$   (opposite reciprocal!)

**#13** The centers of 2 circles of radii 10 cm and 5 cm are 13 cm apart.

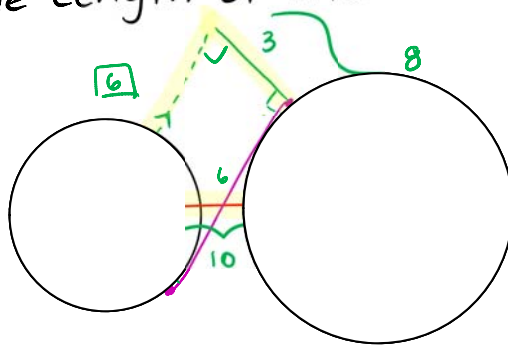a.) Find the length of a common external tangent



$X = 12$

$(5, 12, 13)$
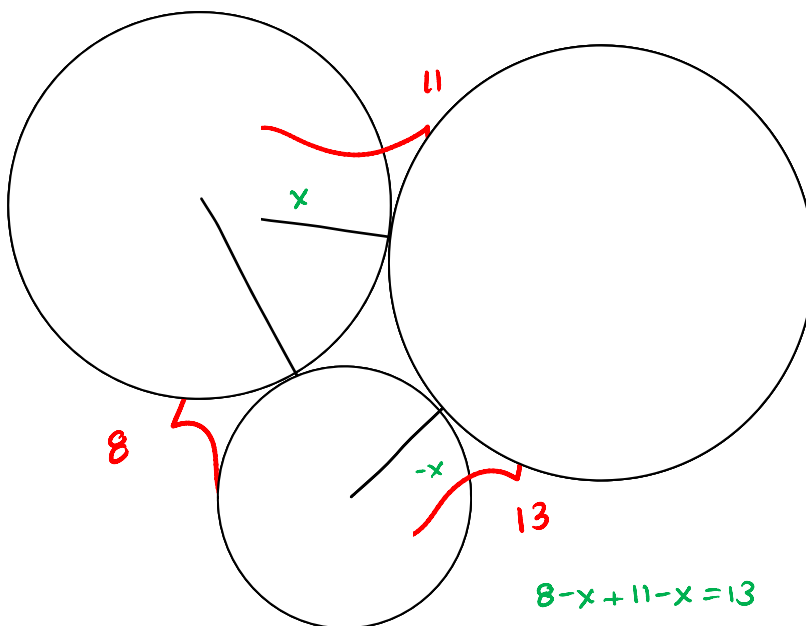
b.) Do the circles intersect — **YES!** - overlap.

**#14** The centers of 2 circles with radii 3 and 5 are 10 units apart. Find the length of the common internal tangent.



$(3, 4, 5) * 2$

$x = 6$

**#16**



$8 - x + 11 - x = 13$
$19 - 2x = 13$
$-2x = -6$
$x = 3$

Radius ⊙A = 3
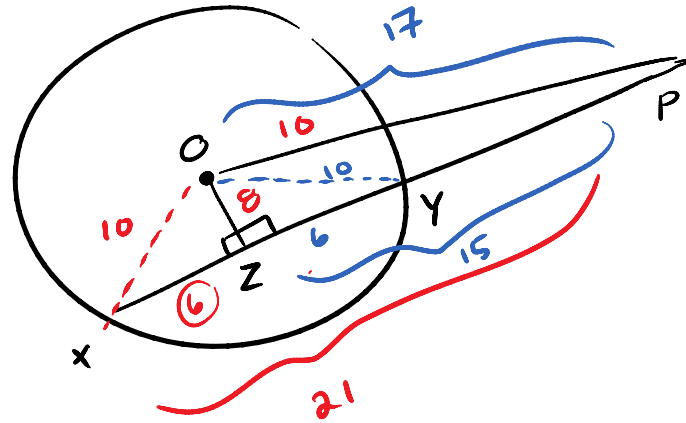⊙B = 5
⊙C = 8

**#17** The radius of ⊙O is 10. The secant segment $\overline{PX}$ measures 21 and is 8 units from the center of the circle
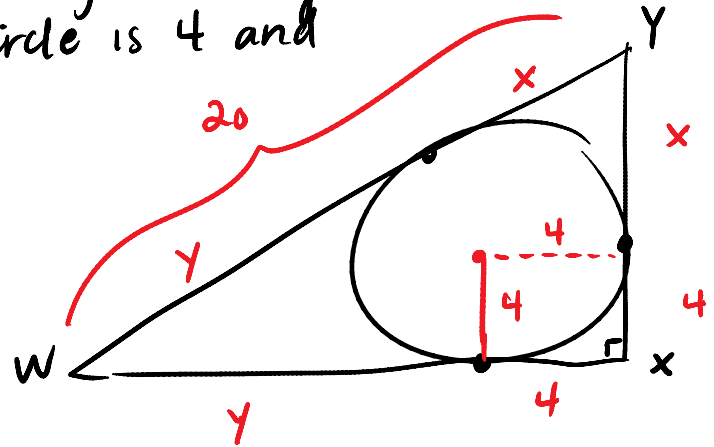


a. Find PY   $15-6=\boxed{9}$

b. Find OP   $\boxed{17}$

**#22** Find the perimeter of a right △ WXY if the radius of the circle is 4 and wy = 20



$x + y = 20$

Per △WXY $= x+y + x+y + 4 + 4$

$= 20 + 20 + 8$

$= \boxed{48}$

**#23** B is 34mm from the center of circle O, which has a radius 16mm. $\overline{BP}$ and $\overline{BR}$ are tangent segments. $\overleftrightarrow{AC}$ is tangent to ⊙O at point Q. Find the perimeter of △ABC



$P_{\triangle BCA} = BC + CA + AB$

$P_{\triangle BCA} = BP + BR$

$P_{\triangle BCA} = 60$