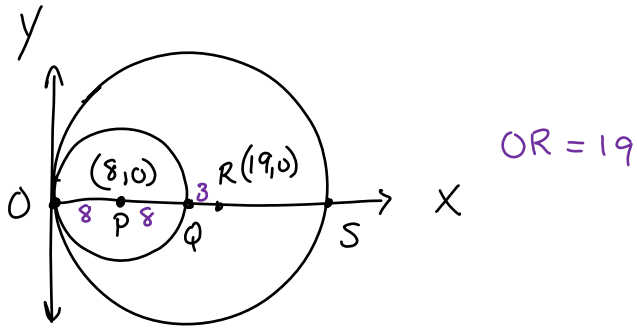
(5) $\odot P$, $\odot R$ internally tangent at O.

a) Find coordinates of Q and S

Q = (16, 0) S = (38, 0)

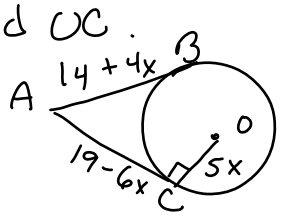
b) $\overline{QR} = 3$



OR = 19

(6) $\overline{AB}$ & $\overline{AC}$ are tangents to $\odot O$

Find OC.



$AB \cong AC$

$14 + 4x = 19 - 6x$

$10x = 5$

$x = 1/2$

$OC = \frac{5}{2}$

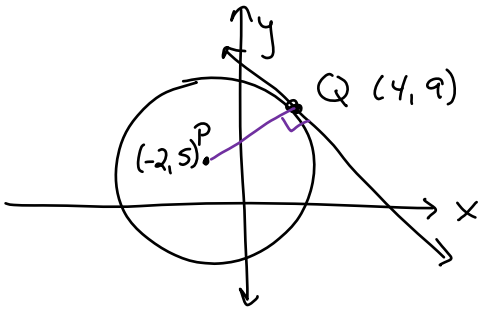
(11) a) Find the radius of $\odot P$

$r = \sqrt{(4 - -2)^2 + (9 - 5)^2} = \sqrt{52} = 2\sqrt{13}$

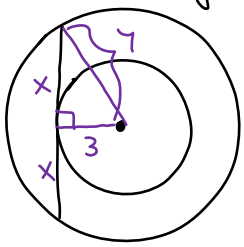
b) Slope of tangent

$m_{PQ} = \frac{9 - 5}{4 - -2} = \frac{4}{6} = \frac{2}{3}$

$\perp$ slope $= -\frac{3}{2}$



(12) 2 concentric $\odot$s have radii 3 and 7. Find the length of chord of the larger $\odot$ that is tangent to smaller $\odot$.



$x^2 + 3^2 = 7^2$

$x^2 + 9 = 49$

$x^2 = 40$

$x = 2\sqrt{10}$

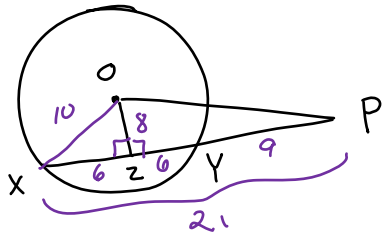
chord $= 4\sqrt{10}$

(17) Radius of ⊙O = 10 PX = 21 and 8 units from center

a) Find PY = 9

b) Find OP = 17

8, 15

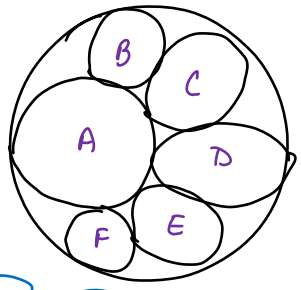


(19) If two of 7 ⊙ are chosen at random, what is the probability that the chosen pair

a) internally tangent $\frac{6}{21} = \frac{2}{7}$

b) externally tangent $\frac{9}{21} = \frac{3}{7}$

c) not tangent $\frac{6}{21} = \frac{2}{7}$



Large ⊙G

AB AC AD AE AF AG

BC BD BE BF BG

CD CE CF CG

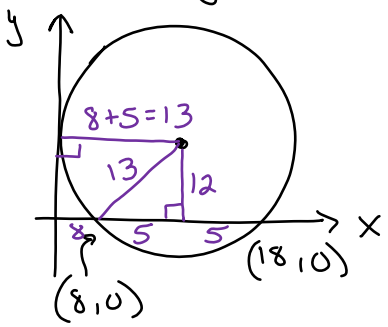
DE DF DG

EF EG

FG

Total = 21

(24) Find the coordinates of the center of a ⊙ that is tangent to the y-axis and intersects x-axis at (8,0) and (18,0)

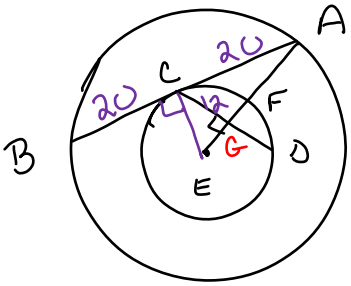


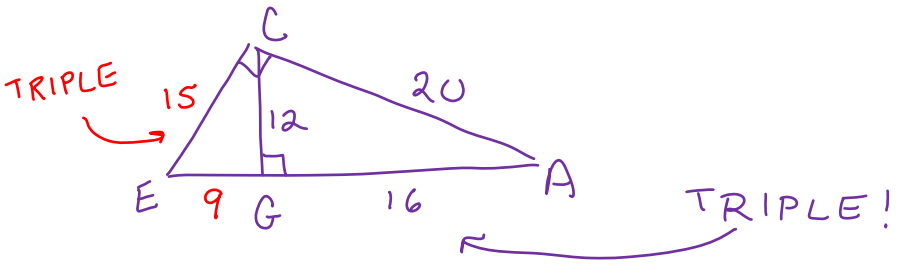
Center (13, 12)

STUDY ✱ (25) 2 concentric ⊙s with center E.

$AB = 40$, $CD = 24$, $\overline{CD} \perp \overline{AE}$, $\overline{AB}$ tangent at C.

Find AF.





To find $\overline{EG}$, Geometric Mean!

$$\frac{EG}{12} = \frac{12}{16}$$

$$16(EG) = 144$$

$$EG = 9$$

$AF = EA - EF$

$= \text{Large Radius} - \text{Small Radius}$

$= (16+9) - 15$

$\boxed{AF = 10}$