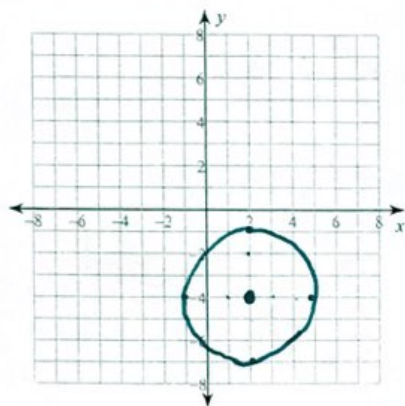


Assignment 2.3

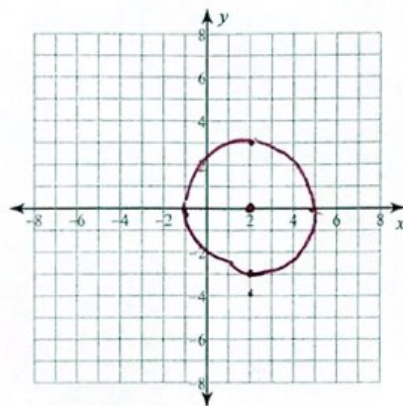
Identify the center and radius of each. Then sketch the graph.

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



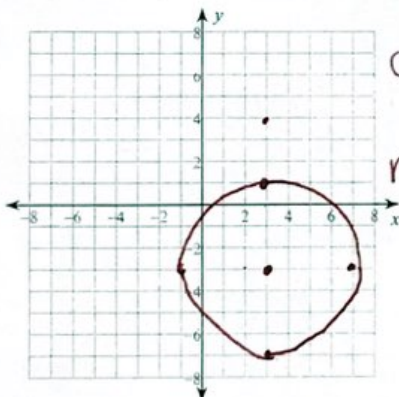
Center:
(2, -4)
radius:
3

2) $(x - 2)^2 + y^2 = 9$



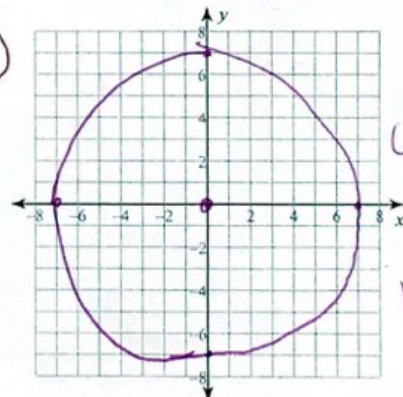
center: (2, 0)
radius: 3

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



center: (3, -3)
radius: 4

4) $x^2 + y^2 = 49$



center: (0, 0)
radius: 7

Use the information provided to write the equation of each circle.

5) Center: (-12, -12)

Radius: $\sqrt{35}$

$(x + 12)^2 + (y + 12)^2 = 35$

6) Center: (-12, -14)

Radius: 1

$(x + 12)^2 + (y + 14)^2 = 1$

7) Center: $(\sqrt{186}, \sqrt{74})$

Circumference: 8π

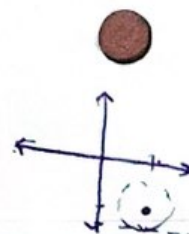
$(x - \sqrt{186})^2 + (y - \sqrt{74})^2 = 16$

8) Center: (10, -13)

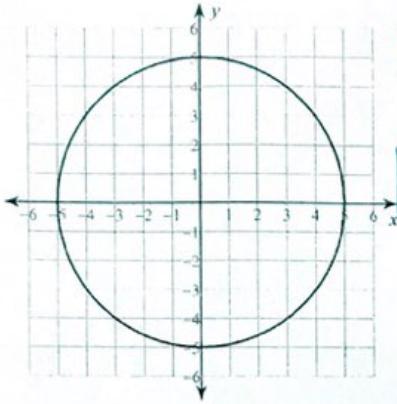
Tangent to $y = -17$

$(x - 10)^2 + (y + 13)^2 = 16$

$\frac{8\pi}{2\pi} = \frac{2\pi r}{2\pi} \quad 4 = r$



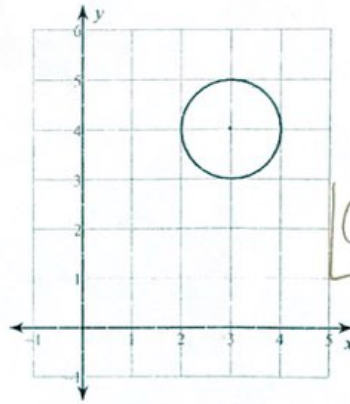
9)



center: $(0,0)$
radius: 5

$$x^2 + y^2 = 25$$

10)

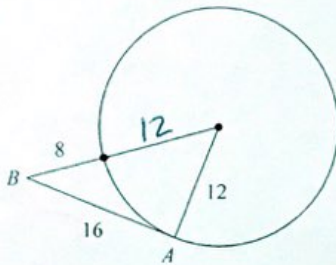


center: $(3,4)$
radius: 1

$$(x-3)^2 + (y-4)^2 = 1$$

Determine if line AB is tangent to the circle.

11)



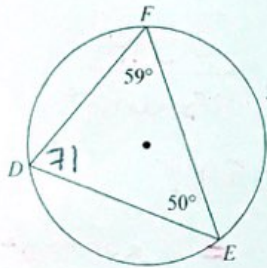
$$12^2 + 16^2 = 20^2$$

$$400 = 400$$

AB is tangent
to the circle.

Find the measure of the arc or angle indicated.

12)

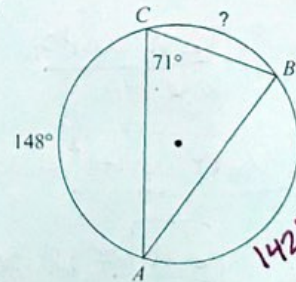


$$59 + 50 + D = 180$$

$$D = 71$$

$$\widehat{FE} = 2 \cdot 71 = 142^\circ$$

13)



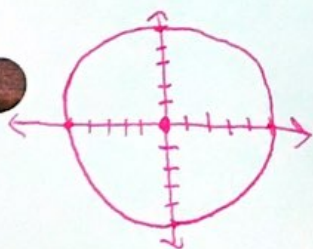
$$\widehat{BA} = 2 \cdot 71 = 142^\circ$$

$$\widehat{CB} = 360 - 148 - 142$$

$$\widehat{CB} = 70^\circ$$

Application Problems

14) A pizza restaurant will deliver up to 5 miles. The restaurant is located at the origin on a coordinate plane whose units represent miles. What is the standard equation of the outer boundary of the delivery region? Customers are located at $A(4, 3)$, $B(5, 0)$, and $C(2, \sqrt{21})$. Which of these customers, if any, are on the outer boundary? Explain.



$$x^2 + y^2 = 25$$

$$A = 4^2 + 3^2 \leq 25 \quad \checkmark$$

$$16 + 9 \leq 25$$

$$B = 5^2 + 0^2 \leq 25 \quad \checkmark$$

$$25 = 25$$

$$C = 2^2 + \sqrt{21}^2 \leq 25 \quad \checkmark$$

$$C = 4 + 21 \leq 25$$

All are on the outer boundary!