

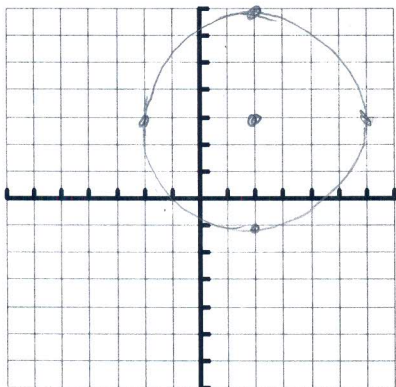
Circles WS

Name

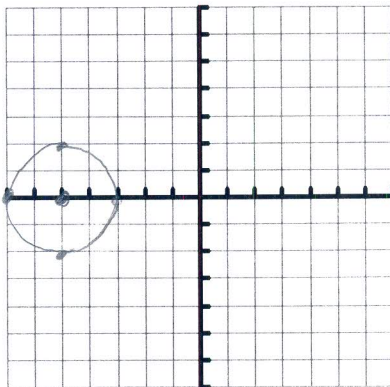
Fuston

For each circle state the center & radius, and then graph.

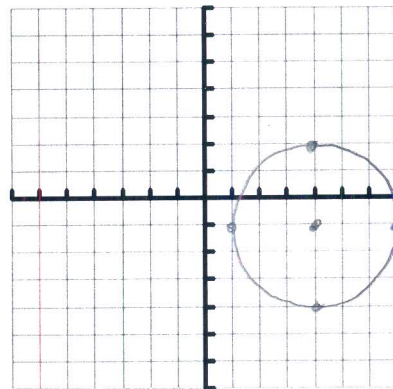
1. $(x-2)^2 + (y-3)^2 = 16$

center: $(2, 3)$ $r = 4$ 

2. $(x+5)^2 + y^2 = 4$

center: $(-5, 0)$ $r = 2$ 

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

center: $(4, -1)$ $r = 3$ 

Write each equation in standard form. Identify the center and the radius.

4. $x^2 + y^2 + 24x + 6y + 152 = 0$

$$(x^2 + 24x + 144) + (y^2 + 6y + 9) = -152 + 144 + 9$$

$$(x+12)^2 + (y+3)^2 = 1$$

C: $(-12, -3)$

$r = 1$

5. $x^2 + y^2 - 4x + 6y - 3 = 0$

$$(x^2 - 4x + 4) + (y^2 + 6y + 9) = 3 + 4 + 9$$

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

C: $(2, -3)$

$r = 4$

6. $2x^2 + 2y^2 + 12x + 48y + 178 = 0$

$$x^2 + y^2 + 6x + 24y + 89 = 0$$

$$(x^2 + 6x + 9) + (y^2 + 24y + 144) = -89 + 9 + 144$$

$$(x+3)^2 + (y+12)^2 = 64$$

C: $(-3, -12)$

$r = 8$

Write the standard form equation of each circle.

7. Write the equation of the circle with center (4, -2) and radius 3.

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

8. Write the equation of the circle with center (0, 0) passing through (2, 5).

$$\begin{aligned} \text{radius} &= \sqrt{2^2 + 5^2} \\ &= \sqrt{29} \end{aligned}$$

$$x^2 + y^2 = 29$$

9. Find the equation of the circle with center (-1, 2) and diameter 8.

$$\text{radius} = 4$$

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

10. Write the equation of the circle whose diameter has endpoints (-3, -2) and (3, 6).

Center
(Midpoint):

$$\left(\frac{-3+3}{2}, \frac{-2+6}{4} \right)$$

$$\left(\frac{0}{2}, \frac{4}{4} \right)$$

$$(0, 1)$$

$$\begin{aligned} \text{diameter} &= \sqrt{(3-(-3))^2 + (6-(-2))^2} \\ &= \sqrt{36 + 64} = \sqrt{100} = 10 \end{aligned}$$

$$\text{radius} = 5$$

$$x^2 + (y-1)^2 = 25$$

Answers:

1) C: (2, 3) r = 4

2) C(-5, 0) r = 2

3) C(4, -1) r = 3

4) C: (-12, -3) r = 1

5) C(2, -3) r = 4

6) C: (-3, -12) r = 8

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

8) $x^2 + y^2 = 29$

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

10) $x^2 + (y-2)^2 = 25$