MORE PRACTICE: Circles

Find the center and radius of the given circle:

1. $(x - 1)^2 + (y - 6)^2 = 9$

Center = $(1, 6)$ radius = 3

2. $(x - 5)^2 + (y + 3)^2 = 49$

Center = $(5, -3)$ radius = 7

3. $(x + 2)^2 + (y + 4)^2 = 11$

Center = $(-2, -4)$ radius = $\sqrt{11}$

4. $y^2 = 15 - x^2$
$+x^2 \qquad +x^2$

$x^2 + y^2 = 15$ Center = $(0, 0)$ radius = $\sqrt{15}$

5. $(x + 2.4)^2 + (y - 3.34)^2 + 20 = 84$
$\qquad\qquad -20 \quad -20$
$\qquad\qquad\qquad 64$

Center = $(-2.4, 3.34)$ radius = 8

Write an equation for the circle that satisfies the given conditions:

6. center = (2, 4) and radius = 3

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

7. center = (-1, 0) and radius = $\sqrt{54}$

$(x + 1)^2 + y^2 = 54$

8. center = (4, -2) and goes through the point (4, 5)

$r = \sqrt{(4-4)^2 + (5--2)^2} = \sqrt{0 + 7^2} = \sqrt{49}$ $(x - 4)^2 + (y + 2)^2 = 49$

9. endpoints of the diameter are (3, −5) and (−1, 1)

Center = $\left(\frac{3+-1}{2}, \frac{-5+1}{2}\right) = \left(\frac{2}{2}, \frac{-4}{2}\right) = (1, -2)$ $(x - 1)^2 + (y + 2)^2 = 13$

$r = \sqrt{(1--1)^2 + (-2-1)^2} = \sqrt{2^2 + (-3)^2} = \sqrt{4+9} = \sqrt{13}$

10. endpoints of the diameter are (−6, −3) and (-1, 2)

Center = $\left(\frac{-6+-1}{2}, \frac{-3+2}{2}\right) = \left(\frac{-7}{2}, \frac{-1}{2}\right)$ $\left(x + \frac{7}{2}\right)^2 + \left(y + \frac{1}{2}\right)^2 = \frac{25}{2}$

$r = \sqrt{\left(-\frac{7}{2}+1\right)^2 + \left(-\frac{1}{2}-2\right)^2} = \sqrt{\left(-\frac{5}{2}\right)^2 + \left(-\frac{5}{2}\right)^2} = \sqrt{\frac{25}{4} + \frac{25}{4}} = \sqrt{\frac{50}{4}} = \sqrt{\frac{25}{2}} = 5\sqrt{\frac{1}{2}}$