

9

CHAPTER REVIEW

9.2 Graph and Write Equations of Parabolas

pp. 620–625

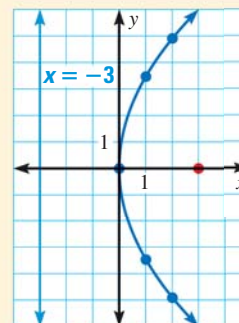
EXAMPLE

Graph $x = \frac{1}{12}y^2$. Identify the focus, directrix, and axis of symmetry.

STEP 1 Rewrite $x = \frac{1}{12}y^2$ in standard form as $y^2 = 12x$.

STEP 2 Identify the focus, directrix, and axis of symmetry. The equation has the form $y^2 = 4px$ with $4p = 12$, so $p = 3$. The focus is $(p, 0)$, or $(3, 0)$, and the directrix is $x = -p$, or $x = -3$. Because y is squared, the axis of symmetry is the x -axis.

STEP 3 Draw the parabola. Because $p > 0$, the parabola opens to the right. Some points on the parabola are $(0, 0)$, $(1, \pm 3.46)$, and $(2, \pm 4.90)$.



EXERCISES

Graph the equation. Identify the focus, directrix, and axis of symmetry of the parabola.

9. $x^2 = 16y$

10. $y^2 = -6x$

11. $x^2 + 4y = 0$

Write the standard form of the equation of the parabola with the given focus or directrix and vertex at $(0, 0)$.

12. Focus: $(-5, 0)$

13. Focus: $(0, 3)$

14. Directrix: $x = -6$

EXAMPLES
1 and 2

on p. 621
for Exs. 9–14

9.3 Graph and Write Equations of Circles

pp. 626–632

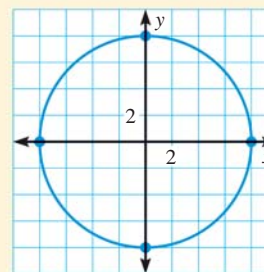
EXAMPLE

Graph $x^2 = 64 - y^2$. Identify the radius of the circle.

STEP 1 Rewrite $x^2 = 64 - y^2$ in standard form as $x^2 + y^2 = 64$.

STEP 2 Identify the radius. The graph is a circle with center at the origin and radius $r = \sqrt{64} = 8$.

STEP 3 Draw a circle passing through points that are 8 units from the origin, such as $(8, 0)$, $(0, 8)$, $(-8, 0)$, and $(0, -8)$.



EXERCISES

Graph the equation. Identify the radius of the circle.

15. $x^2 + y^2 = 81$

16. $x^2 = 40 - y^2$

17. $3x^2 + 3y^2 = 147$

Write the standard form of the equation of the circle that passes through the given point and whose center is the origin.

18. $(5, 9)$

19. $(-8, 2)$

20. $(-7, -4)$

EXAMPLES
1 and 2

on pp. 626–627
for Exs. 15–20