WRITING IN INTERCEPT FORM **Write a quadratic function in intercept form whose graph has the given *x*-intercepts and passes through the given point.**

20. *x*-intercepts: 2, 5
point: (4, −2)

21. *x*-intercepts: −3, 0
point: (2, 10)

22. *x*-intercepts: −1, 4
point: (2, 4)

23. *x*-intercepts: 3, 7
point: (6, −9)

24. *x*-intercepts: −5, −1
point: (−7, −24)

25. *x*-intercepts: −6, 3
point: (0, −9)

ERROR ANALYSIS ***Describe*** **and correct the error in writing a quadratic function whose graph has the given *x*-intercepts or vertex and passes through the given point.**

26. *x*-intercepts: 4, −3; point: (5, −5)

$y = a(x - 5)(x + 5)$

$-3 = a(4 - 5)(4 + 5)$

$-3 = -9a$

$\frac{1}{3} = a$, so $y = \frac{1}{3}(x - 5)(x + 5)$ ✗

27. vertex: (2, 3); point: (1, 5)

$y = a(x - 2)(x - 3)$

$5 = a(1 - 2)(1 - 3)$

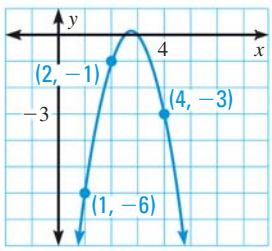
$5 = 2a$

$\frac{5}{2} = a$, so $y = \frac{5}{2}(x - 2)(x - 3)$ ✗

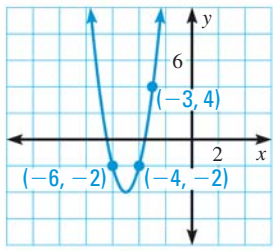
EXAMPLE 3
on p. 310
for Exs. 28–39

WRITING IN STANDARD FORM **Write a quadratic function in standard form for the parabola shown.**

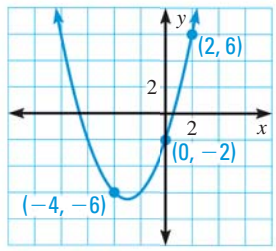
28.



29.



30.



WRITING IN STANDARD FORM **Write a quadratic function in standard form for the parabola that passes through the given points.**

31. (−4, −3), (0, −2), (1, 7)

32. (−2, −4), (0, −10), (3, −7)

33. (−2, 4), (0, 5), (1, −11)

34. (−1, −1), (1, 11), (3, 7)

35. (−1, 9), (1, 1), (3, 17)

36. (−6, −1), (−3, −4), (3, 8)

37. (−2, −13), (2, 3), (4, 5)

38. (−6, 29), (−4, 12), (2, −3)

39. (−3, −2), (3, 10), (6, −2)

WRITING QUADRATIC FUNCTIONS **Write a quadratic function whose graph has the given characteristics.**

40. passes through:
(−0.5, −1), (2, 8), (11, 25)

41. *x*-intercepts: −11, 3
passes through: (1, −192)

42. vertex: (4.5, 7.25)
passes through: (7, −3)

43. **TAKS REASONING** Draw a parabola that passes through (−2, 3). Write a function for the parabola in standard form, intercept form, and vertex form.

44. **TAKS REASONING** Suppose you are given a set of data pairs (x, y). *Describe* how you can use ratios to determine whether the data can be modeled by a quadratic function of the form $y = ax^2$.

45. **CHALLENGE** Find a function of the form $y = ax^2 + bx + c$ whose graph passes through (1, −4), (−3, −16), and (7, 14). *Explain* what the model tells you about the points.