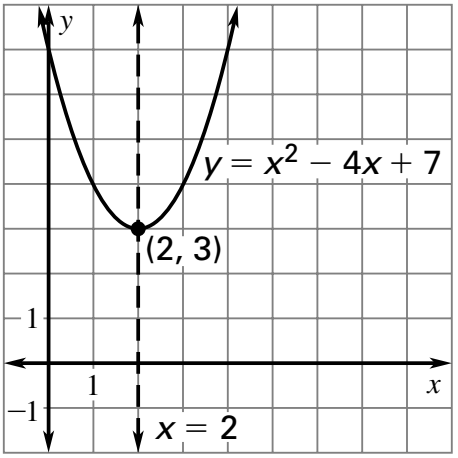
ANSWERS FOR 5.1

For use with pages 253–255

5.1 Guided Practice

2. Up: since $a = 3$ and is greater than 0, the parabola opens up.

4.



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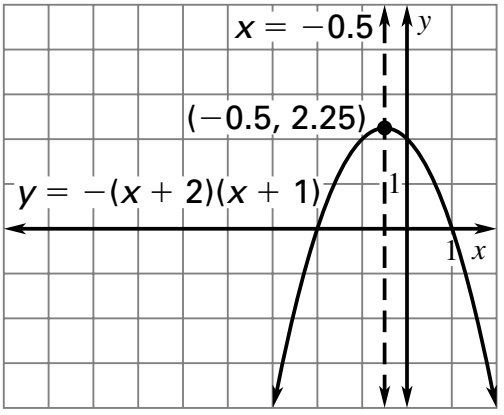

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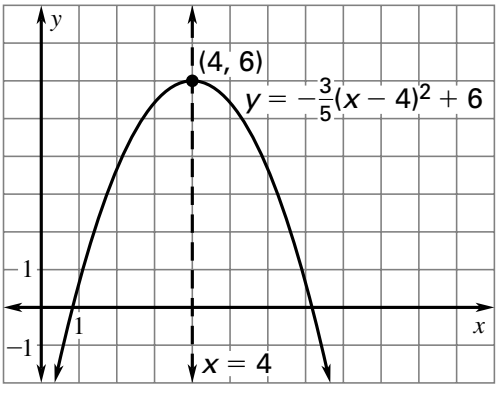


10. $y = x^2 + 3x + 2$

12. $y = 4x^2 - 8x + 9$

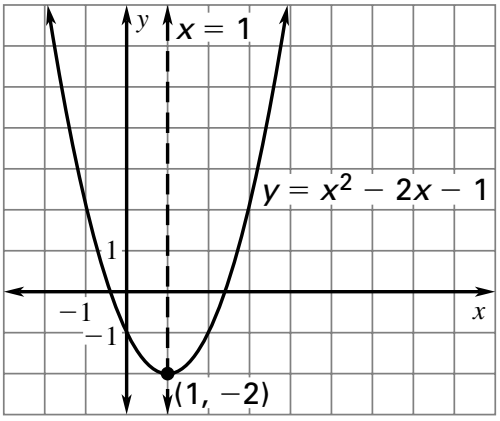
14. $y = -\frac{1}{2}x^2 + 7x - 24$

16. 71.4°F; 73°F

5.1 Practice and Applications

18. A

20.



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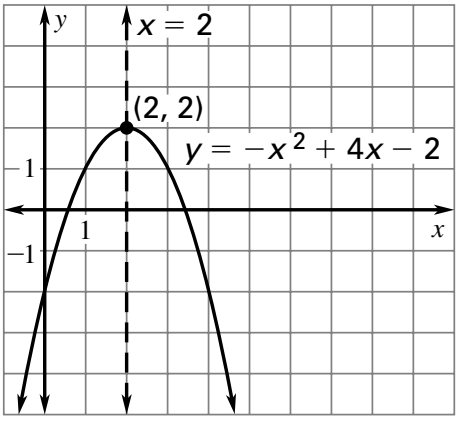

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ANSWERS FOR 5.1 (CONT.)

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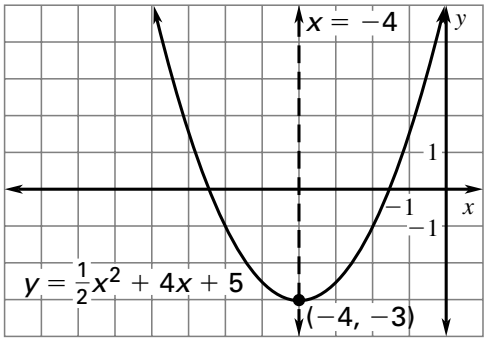

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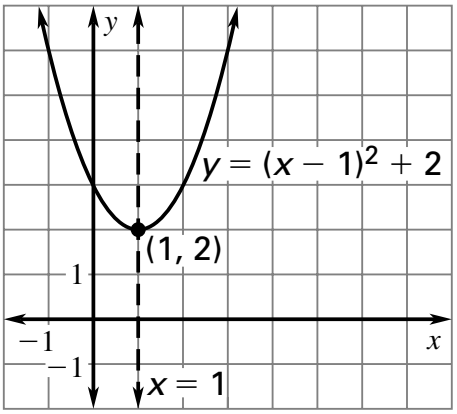

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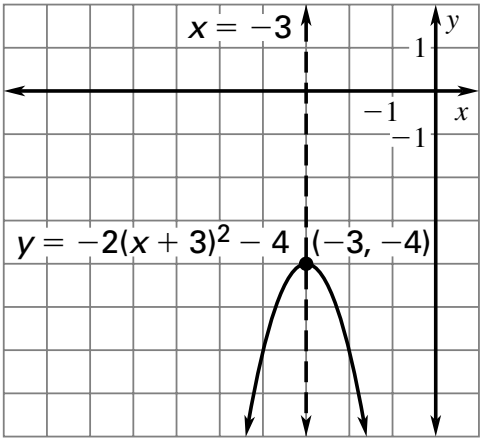

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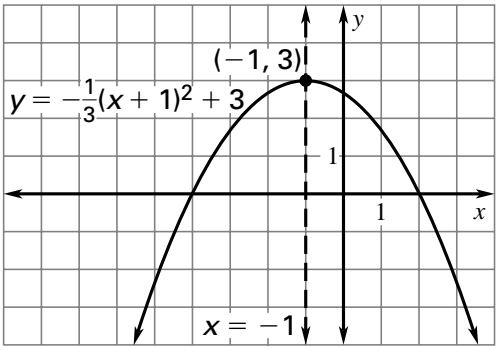

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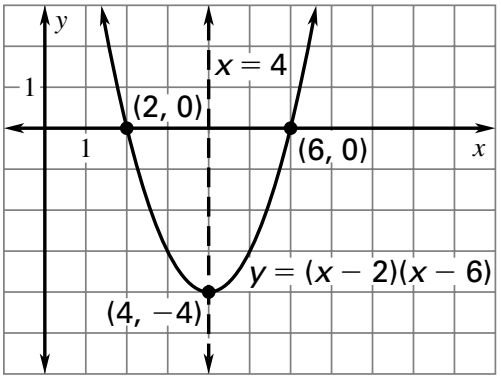

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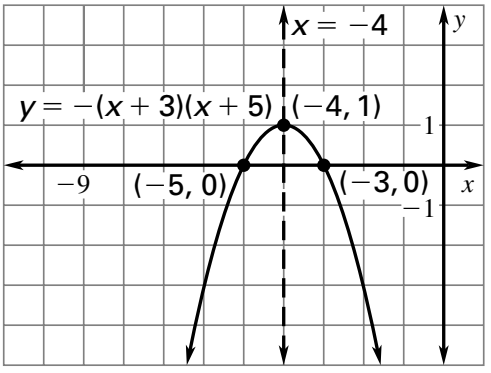

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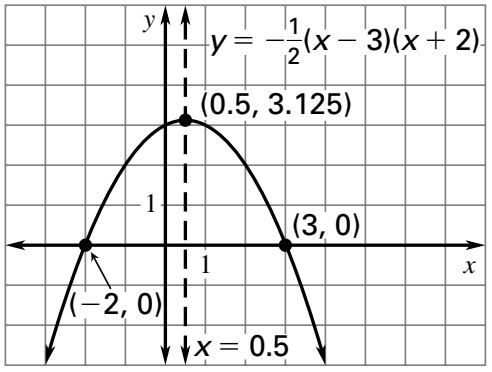

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ANSWERS FOR 5.1 (CONT.)

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38. $y = x^2 + 7x + 10$

40. $y = 2x^2 - 14x + 12$

42. $y = 20x^2 + 37x + 8$

44. $y = -x^2 + 10x - 14$

46. $y = 8x^2 + 112x + 372$

48. $y = -\frac{7}{3}x^2 - 21x - 42$

50. As c increases, the graph moves upward. The graph moves left as b increases.

52. 160 ft; 1.5 ft

54. 6 ft, 2 ft

56. $y = a(x - h)^2 + k$
$y = a(x^2 - 2xh + h^2) + k$
$y = ax^2 - 2axh + ah^2 + k$
$y = a(x - p)(x - q)$
$y = a(x^2 - xp - xq + pq)$
$y = ax^2 - ax(p + q) + apq$

For $y = ax^2 - 2axh + ah^2 + k$, $a = a$ and $b = -2ah$. Then $x = -\frac{b}{2a}$ (the x-coordinate of the vertex) $= \frac{2ah}{2a} = h$. For $y = ax^2 - aqx + apq$, $a = a$ and $b = -a(p + q)$. Then $x = -\frac{b}{2a}$ (then x-coordinate of the vertex) $= -\frac{-a(p + q)}{2a} = \frac{p + q}{2}$.

5.1 Mixed Review

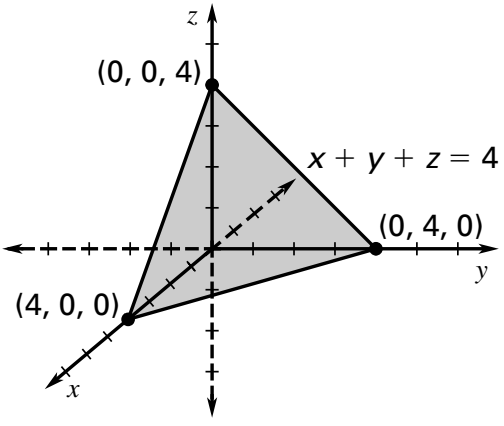
58. -2.5

60. -2

62. $\frac{11}{18}$

64. 20

66.



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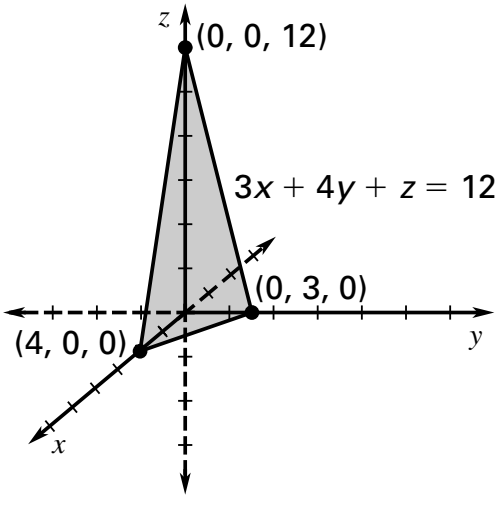

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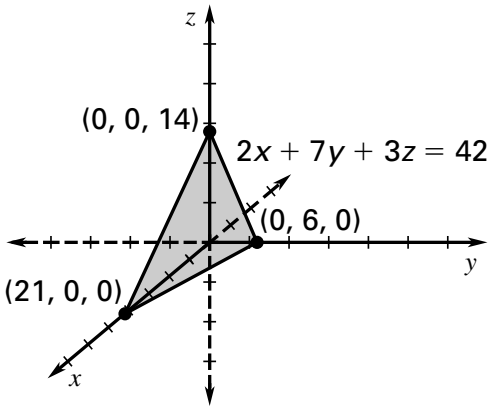
70.



72. $(-3, 4)$ **74.** $(-5, -2)$

76. $(-1, 0, 6)$

78. $1\frac{1}{14}$ ft per hr

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