LESSON 5.1

NAME _____ DATE _____

Practice A

For use with pages 249–255

Write the quadratic function in standard form. Determine whether the graph of the function opens up or down.

1. $y = 2x^2 + x - 1$
2. $y = 3 - x - x^2$
3. $y = 4 + 3x - 5x^2$
4. $y = -2x + 1 + x^2$
5. $y = 4 - 3x^2$
6. $y = x + 9x^2$
7. $y = x^2 + 3 - 5x$
8. $y = -3x^2 + 1 - 4x$
9. $y = 3x - 2x^2 + 3$

Find the axis of symmetry of the parabola.

10. $y = 2x^2 + 4x - 1$
11. $y = -x^2 + 2x + 5$
12. $y = 3x^2 - 8x + 2$
13. $y = x^2 + 6x$
14. $y = 2x^2 + 2x - 3$
15. $y = 3x^2 - 5$

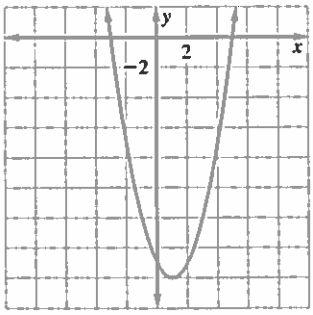
Find the vertex of the parabola.

16. $y = x^2 + 2x - 1$
17. $y = 2x^2 - 8x + 3$
18. $y = -x^2 - 6x + 8$
19. $y = x^2 - 5$
20. $y = -x^2 + 4$
21. $y = 2x^2 + 4x$

Match the quadratic function with its graph.

22. $y = x^2 + 2x - 15$
23. $y = (x + 3)(x - 5)$
24. $y = -(x + 1)^2 - 12$

A.



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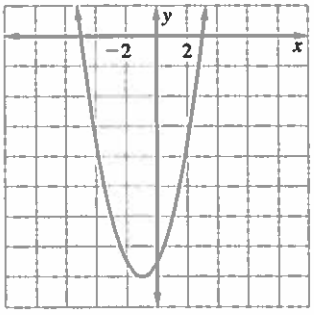

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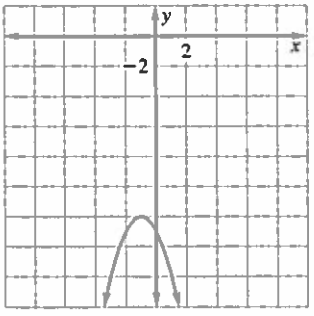


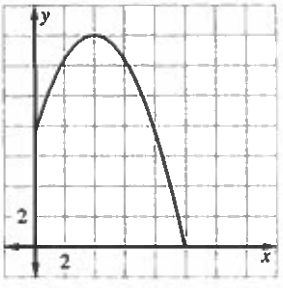
Write the quadratic function in standard form.

25. $y = 3(x - 2)^2 + 1$
26. $y = (x + 1)^2 + 2$
27. $y = -2(x + 3)^2 - 1$
28. $y = -2(x + 3)(x - 1)$
29. $y = (x - 3)(x - 6)$
30. $y = 4(x + 1)(x + 2)$

Graph the quadratic function. Label the vertex and axis of symmetry.

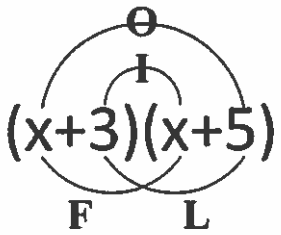
31. $y = (x - 1)^2 + 3$
32. $y = (x + 2)^2 - 1$
33. $y = -(x - 2)^2 - 1$

34. ***Maximum Height*** The path that a diver follows is given by $y = -0.4(x - 4)^2 + 14$ where x is the horizontal distance (in feet) from the edge of the diving board and y is the height (in feet). What is the maximum height of the diver?



Name_____ Section_____

Multiplying Binomials
FOIL Practice Worksheet



Find Each Product.

1. $(x + 1)(x + 1)$

2. $(x + 1)(x + 2)$

3. $(x + 2)(x + 3)$

4. $(x + 3)(x + 2)$

5. $(x + 4)(x + 3)$

6. $(x - 6)(x + 2)$

7. $(x - 5)(x - 4)$

8. $(y + 6)(y + 5)$

9. $(2x + 1)(x + 2)$

10. $(y + 6)(3y + 2)$

11. $(2x + 1)(2x + 1)$

Multiplying Binomials Cont…

12. $(x + 5)(3x - 1)$

13. $(2x - 1)(x - 3)$

14. $(x + y)(x + y)$

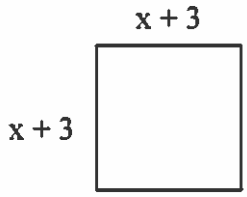
15. $(3x + y)(x + y)$

16. $(2x + y)(2x - y)$

17. $(3x - y)(x + 2y)$

Find the area of each shape.

18.



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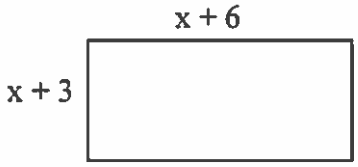

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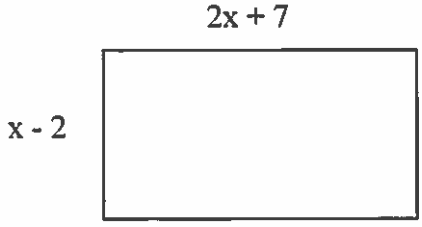

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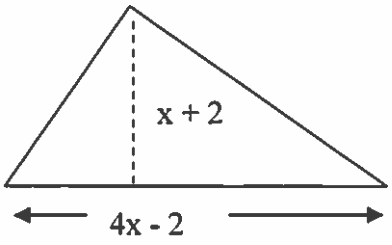


LESSON 5.3

NAME _____ DATE _____

Practice A

For use with pages 264–270

Simplify the expression.

1. $\sqrt{32}$
2. $\sqrt{12}$
3. $\sqrt{45}$
4. $\sqrt{125}$
5. $2\sqrt{18} \cdot \sqrt{2}$
6. $\sqrt{54} \cdot 2\sqrt{6}$
7. $\sqrt{\frac{49}{4}}$
8. $\sqrt{\frac{100}{9}}$
9. $\sqrt{\frac{1}{121}}$
10. $\sqrt{\frac{12}{25}}$
11. $\sqrt{\frac{72}{5}}$
12. $\sqrt{\frac{2}{3}} \cdot \sqrt{\frac{4}{3}}$

Solve the equation.

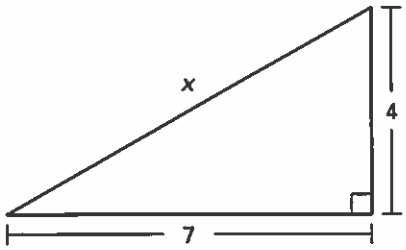
13. $x^2 = 9$
14. $x^2 = 144$
15. $x^2 = 128$
16. $x^2 - 36 = 0$
17. $x^2 - 1 = 0$
18. $x^2 - 8 = 0$
19. $2x^2 = 2$
20. $-4x^2 = -36$
21. $\frac{1}{2}x^2 = 32$
22. $x^2 - 3 = 1$
23. $x^2 + 2 = 7$
24. $16 - x^2 = -9$
25. $3x^2 - 1 = 5$
26. $\frac{1}{3}x^2 + 5 = 32$
27. $2x^2 - 11 = x^2 + 5$

Find the time it takes an object to hit the ground when it is dropped from a height of s feet. Use the falling-object model $h = -16t^2 + s$.

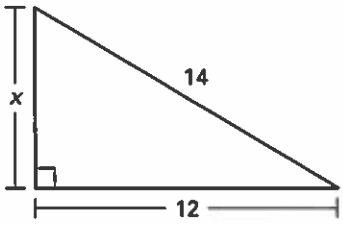
28. $s = 80$
29. $s = 160$
30. $s = 320$

Use the Pythagorean theorem to find x. Round your answer to the nearest hundredth.

31.



32.



33. *Cost of a New Car* From 1970 to 1990, the average cost of a new car, C (in dollars), can be approximated by the model $C = 30.5t^2 + 4192$, where t is the number of years since 1970. During which year was the average cost of a new car \$12,000?