

1. The graph of $f(x) = 2x^2 + 20x + 48$ is shown.

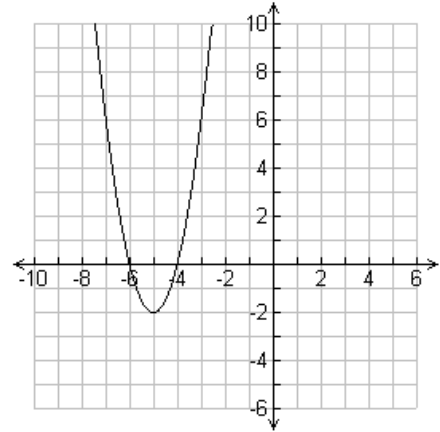
a. Write the equation in intercept form by factoring.

b. What are the x -intercepts of the graph?

Write the x -intercepts as ordered pairs.

What are the zeros of the function?

What are the roots of the function?



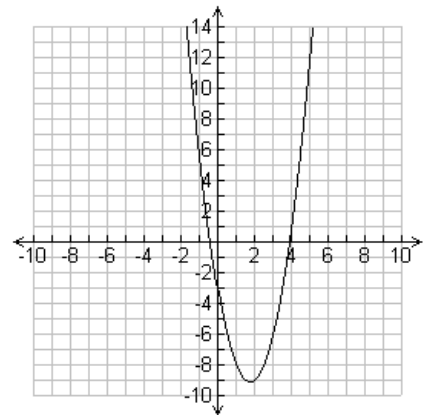
c. How do the zeros and factors of the equation relate?

2. The graph of the function $f(x) = 2x^2 - 7x - 3$ is shown.

a. What does it mean to solve the equation

$2x^2 - 7x - 3 = 12$? Explain, then represent the meaning on the graph.

b. Solve the equation $2x^2 - 7x - 3 = 12$ by rewriting the equation so that the value of each side of the equation is zero. Then factor and use the zero product property.



Solve each quadratic equation by factoring and using the zero product property.

3. $x^2 + 6x + 8 = 0$

4. $x^2 - 8x + 7 = -5$

5. $x^2 - 8x + 30 = 3x$

6. $p^2 + 2p = 35$

7. $x^2 + 18x = 9x$

8. $n^2 - 49 = 0$

9. $11x^2 + 25x = 24$

10. $6n^2 + 5n - 9 = -8$

11. $14x - 49 = x^2$

12. $10x + 6 = -2x^2 - 2$

13. $3x^2 - 12 = 0$

14. $50x = 2x^2$

Find the zeros of each function.

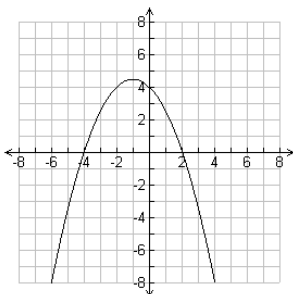
15. $f(x) = x^2 + 5x - 6$

16. $f(x) = 6x^2 - 7x - 20$

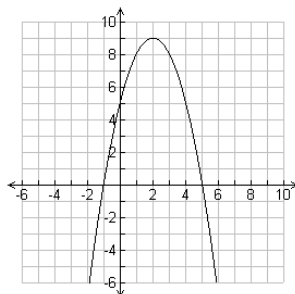
17. $f(x) = 20x^2 - 88x + 32$

Identify the zeros of each graph, then match the equation with its graph.

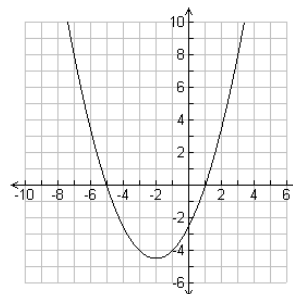
18.



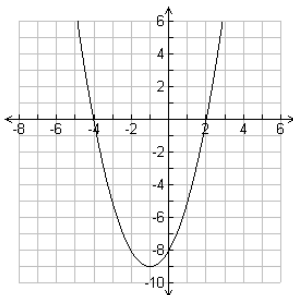
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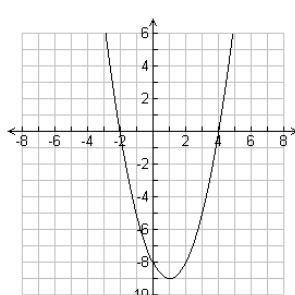
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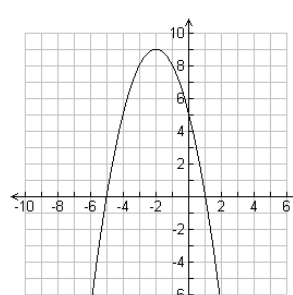
21.



22.



23.



a. $y = (x - 2)(x + 4)$

b. $y = -\frac{1}{2}(x - 2)(x + 4)$

c. $y = \frac{1}{2}(x - 1)(x + 5)$

d. $y = -(x - 1)(x + 5)$

e. $y = (x - 4)(x + 2)$

f. $y = -(x + 1)(x - 5)$

Write an equation in standard form for the graph with the given zeros.

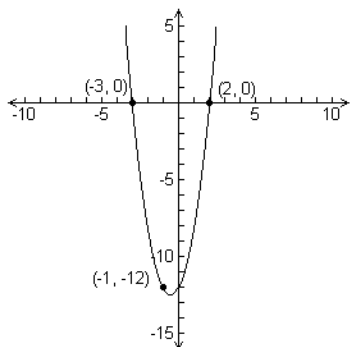
24. 2, 5

25. 3, -4

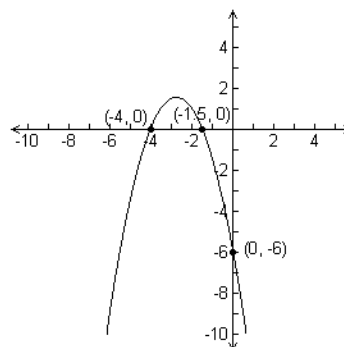
26. -1, -3

Write an equation in standard form for each graph.

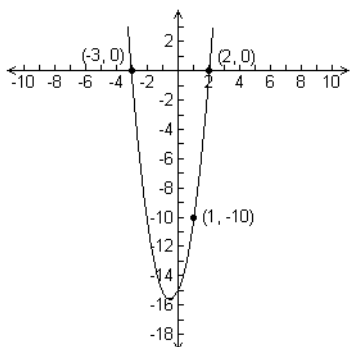
27.



28.



29.



Solve each inequality.

30. $x^2 - x - 12 > 0$

31. $x^2 - x - 12 < 0$

32. $2x^2 + 13x + 15 < 0$

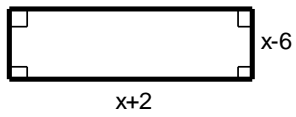
33. $-x^2 - 2x + 35 > 0$

34. $-x^2 - 5x + 6 < 0$

35. $-3x^2 + 9x + 120 > 0$

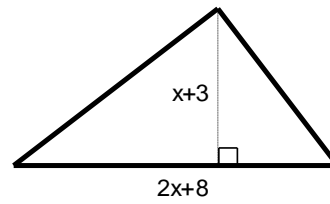
Find the value of x .

36.



Area = 9 square feet

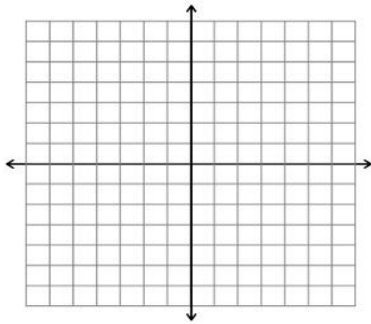
37.



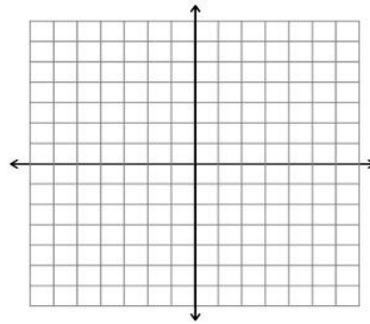
Area = 42 square feet

Challenge. Solve the absolute value inequalities by graphing.

38. $2|x+3|-2 > 0$



39. $-|x-3|+3 > 0$



40. $\frac{1}{2}|x-2|-1 > 0$

