

NAME: _____

5.3 Solving Quadratics by Factoring

Multiply

Factor

Ex 1:

Ex 2:

Ex 3:

Ex 4:

Zero Product Property:

Ex 5: Solve:

Solving Quadratics by Factoring

Sketch

Ex 6:

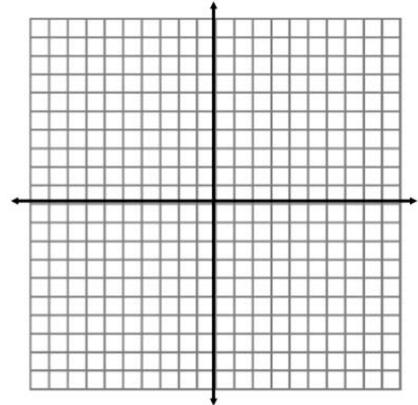
Ex 7:

a) Find the zeroes of $g(x) =$

b) Plot the zeroes on the graph.

c) Find the axis of symmetry and sketch it.

d) Find the vertex.



YOU TRY:

1) Factor:

2) Solve and Sketch:

Summarize your notes:

5.3 Practice Problems

Directions: Factor each completely.

1) $v^2 + 10v + 21$

2) $r^2 - 8r - 20$

3) $x^2 - 15x + 50$

4) $20v^2 + 13v + 2$

5) $3x^2 + 11x + 6$

6) $3x^2 + x - 30$

7) $6r^2 - 11r - 10$

8) $9x^2 + 3x - 20$

9) $9x^2 + 83x + 18$

Directions: Solve each equation. Sketch it.

10) $x^2 + 9x = -14$

11) $-n^2 + 48 = -8n$

12) $5p^2 - 28 = 31p$

Directions: Find the zeroes. Sketch it.

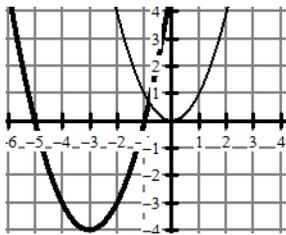
13) $f(x) = x^2 - 12x + 32$

14) $h(x) = 3x^2 + 2x - 16$

15) $g(x) = 16x^2 - 2x - 5$

Algebra Skillz

Below, the graph of $f(x) = (x + 3)^2 - 4$ is sketched in bold. Its parent function $f(x) = x^2$ is represented by the thin curve.



1) Describe the translation of the parent graph.

2) How does the translation relate to the equation?

3) $\sqrt{20} - 4\sqrt{45}$

4) $(2x^2 - x + 5) - (3x^2 - 8)$

5) Multiply:
 $(x - 2)(3x - 8)$

6) Factor and solve.
 $x^2 + 19x + 60 = 0$

5.3 Application and Extension

1) Factor: $8x^2 - 6x - 9$

2) Solve and sketch. $-g^2 - g = -90$

3) Spider-Brust is super at helping Habitat for Humanity. Habitat for Humanity is an organization that seeks to eliminate poverty housing and homelessness from the world. Spider-Brust likes to volunteer by helping build some of the homes built by Habitat for Humanity. At the latest build site Spider-Brust wants to double a room that is currently 35 feet by 18 feet by adding the same distance x to both the length and width.

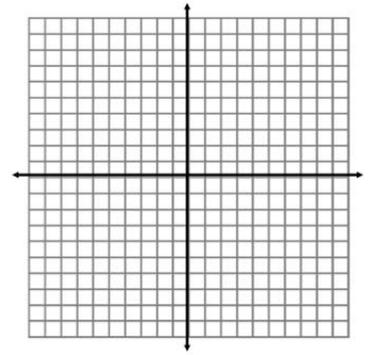
a) Find the current area of the room.

b) Write an equation that models doubling the area by adding the same distance x to both the length and the width.

c) Solve the equation and find the new dimensions of the room that Spider-Brust is going to build.

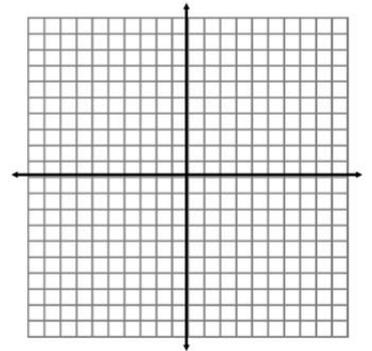
4) For the following use the function, $f(x) = x^2 - 4x - 5$.

- Find the zeroes. Plot them on the graph.
- Determine the axis of symmetry by using the zeroes.
- Find the vertex. Graph the quadratic.



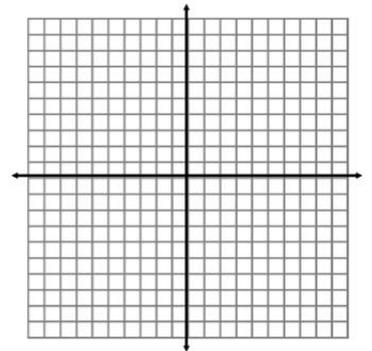
5) For the following use the function, $g(x) = 2x^2 + 7x + 6$

- Find the zeroes. Plot them on the graph.
- Determine the axis of symmetry by using the zeroes.
- Find the vertex. Graph the quadratic.



6) For the following use the function, $h(x) = (x - 1)^2 - 5$

- Find the vertex and axis of symmetry. Plot them.
- Put the function in standard form.
- Find the zeroes of your function from part b. Can you factor it? If not estimate the zeroes from the graph.



SAT PREP Below are sample SAT questions. The SAT is the main standardized test that colleges look at for admission. One is multiple choices; the other is free response where you must grid in your answer. Blow it up.

MULTIPLE CHOICE

Which of the following is not equivalent to $x^2 - 4x - 12$?

- $(x + 6)(x - 2)$
- $(x - 2)^2 - 16$
- $(x - 6)(x + 2)$
- $x(x - 4) - 12$

GRID IN

$X = ?$ for the axis of symmetry of the function, $f(x) = (x - 10)(x + 4)$?

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1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9