

Name: _____

Date: _____

Bellwork!

1. What is the complete factorization of $2x^2 + x - 15$?

(A) $(x - 5)(2x + 3)$

(C) $(x - 3)(2x + 5)$

(B) $(x + 3)(2x - 5)$

(D) $(x + 5)(2x - 3)$

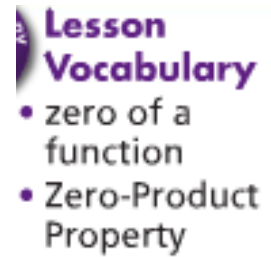
2. What is the complete factorization of $16x^2 - 56x + 49$?

(F) $(4x - 7)(4x + 7)$

(H) $(4x + 7)^2$

(G) $(4x - 7)^2$

(I) $16(x - 7)^2$

AGENDA**Bellwork:****Homework Review:****Lesson: Quadratic Equations****Objective:** To solve quadratic equations by factoring and graphing.

Essential Understanding To find the zeros of a quadratic function $y = ax^2 + bx + c$, solve the related quadratic equation $0 = ax^2 + bx + c$.

Problem 1 Solving a Quadratic Equation by Factoring

Problem 2 Solving a Quadratic Equation With Tables

Problem 3 Solving a Quadratic Equation by Graphing

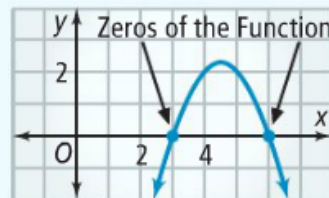
Problem 4 Using a Quadratic Equation

Teacher Directed: Problems 1, 2, 3, 4**Student Centered:** Lesson Quiz**Homework:** Problem Set G “select problems”

4-5 Quadratic Equations

Wherever the graph of a function $f(x)$ intersects the x -axis, $f(x) = 0$.
A value of x for which $f(x) = 0$ is a **zero of the function**.

Essential Understanding To find the zeros of a quadratic function $y = ax^2 + bx + c$, solve the related quadratic equation $0 = ax^2 + bx + c$.



You can solve some quadratic equations in standard form by factoring the quadratic expression and using the **Zero-Product Property**.

Property Zero-Product Property

If $ab = 0$, then $a = 0$ or $b = 0$.

Problem 1 Solving a Quadratic Equation by Factoring

What are the solutions of the quadratic equation $x^2 - 5x + 6 = 0$?

Got It? 1. What are the solutions of the quadratic equation $x^2 - 7x = -12$?

Problem 2 Solving a Quadratic Equation With Tables

What are the solutions of the quadratic equation $5x^2 + 30x + 14 = 2 - 2x$?

Got It? 2. What are the solutions of the quadratic equation $4x^2 - 14x + 7 = 4 - x$?

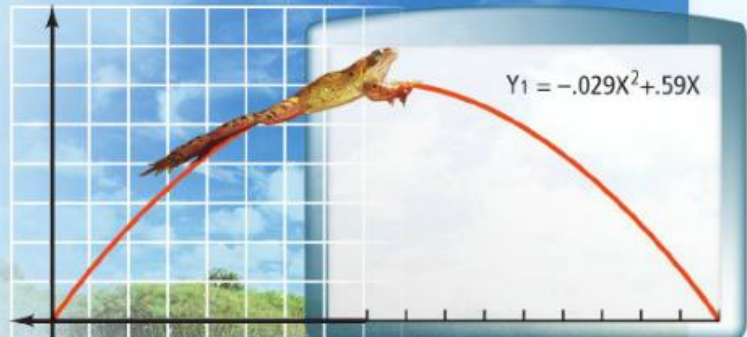
Problem 3 Solving a Quadratic Equation by Graphing

What are the solutions of the quadratic equation $2x^2 + 7x = 15$?

Got It? 3. What are the solutions of the quadratic equation $x^2 + 2x - 24 = 0$?

Problem 4 Using a Quadratic Equation

Competition From the time Mark Twain wrote *The Celebrated Jumping Frog of Calaveras County* in 1865, frog-jumping competitions have been growing in popularity. The graph shows a function modeling the height of one frog's jump, where x is the distance, in feet, from the jump's start.



A How far did the frog jump?

B How high did the frog jump?

C What is a reasonable domain and range for such a frog-jumping function?

Got It? 4. a. The function $y = -0.03x^2 + 1.60x$ models the path of a kicked soccer ball. The height is y , the distance is x , and the units are meters. How far does the soccer ball travel? How high does the soccer ball go? Describe a reasonable domain and range for the function.

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4-5 Lesson Quiz

1. Solve $x^2 - 8x + 12 = 0$.

2. Solve $5x^2 - 4x - 7 = 1 - x$.

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

4. **Do you UNDERSTAND?** The function $f(x) = -0.002x^2 + 0.66x$ models the path of a softball that is hit for a home run, where $f(x)$ gives the height of the ball and x gives the distance from where it is hit in feet.

- a. How far does the ball travel before hitting the ground?
- b. How high does the ball go?
- c. What is a reasonable domain and range for a home run modeling function?