We will solve **Quadratic Equations** by factoring.

CCSS.MATH.CONTENT.HSA.REI.B.4.B
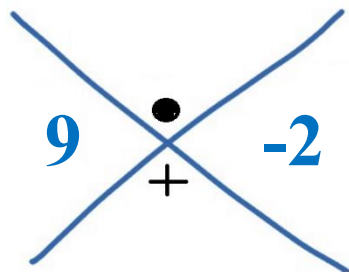
Activate Prior Knowledge

Factor the following expressions.

1). $3x^2 - 7x - 6$ (3)

9   •   -2
    +

$(x + \dfrac{9}{3})(x - \dfrac{2}{3})$

2). $3x^2 + 14x + 8$

$(x + \dfrac{2}{3})(x + \dfrac{12}{3})$

$(x + \dfrac{2}{3})(x + \dfrac{\cancel{12}^{4}}{\cancel{3}})$

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

6.1 Ad...
Polyn...
6.2 Mu...
Home...
6.3 Th...
Home...
6.4 Fa...

Discipline

RETURN HOMEWORK GET BETTER GRADES

DALAI LAMA

He said, "There are only two days in the year that nothing can be done. One is called *yesterday* and the other is called *tomorrow*, so today is the right day to love, believe, do **the math.**

Response
Today's Date:
Incident Date:

1
2
3
4
5

A Quadratic Equation is a second-degree polynomial equation.

Ex $x^2 + 2x = 35$ $x^2 - 8x = 9$

The **Zero Product Property** states that if the product of two unknown numbers equals zero, one or both of the numbers is equal to zero.

- A **quadratic equations** can have **no**, **1**, or **2** zeros (Solutions).
- The zeros of a quadratic equations can be found by factoring the quadratic expression.
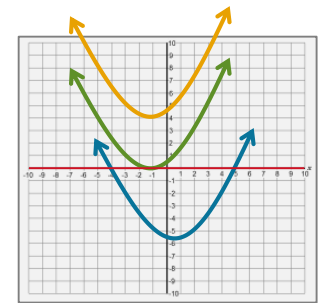
Zero Product Property

If $a \cdot b = 0$ then either $a = 0$ or $b = 0$.

Helpful Hint

When a is positive, the parabola is happy ($\cup$). When a is negative, the parabola is sad ($\cap$).

Solve $x^2 + 7x + 10 = 0$

$x^2 + 7x + 10 = 0$

$(x + 2)(x + 5) = 0$

$x + 2 = 0$ or $x + 5 = 0$

$x = -2$ or $x = -5$

CFU
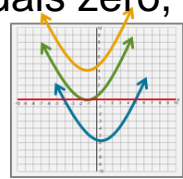
On your white board, draw the x- and y-axes.

Draw the graph of a function with no, one, or two zeros. Explain.

If $(x-2)(x-3)=0$, then what are the values of x equals to?

In your own words, what are the zeros product property?
The zeros product property states _____.

The **Zero Product Property** states that if the product of two unknown numbers equals zero, one or both of the numbers is equal to zero.

- *A **quadratic equations** can have **no**, **1**, or **2** zeros (Solutions).*
- *The zeros of a quadratic equations can be found by factoring the quadratic expression.*

Find zeros of Quadratic Equations by factoring.
❶ Set the right-hand side equal to zero, if necessary.
❷ Factor the quadratic Equation, if necessary.
❸ Set up two equations using the Zero Product Property.
❹ Solve each equation.

CFU

Ⓐ What are the steps 1&2?
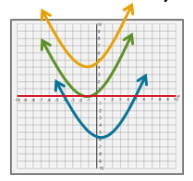
Ⓑ What are the steps 3&4?

1. $(x - 3)(x + 7) = 0$ 🅰

2. $(x - 2)(x + 1) = 0$ 🅱

The **Zero Product Property** states that if the product of two unknown numbers equals zero, one or both of the numbers is equal to zero.

- *A **quadratic equations** can have **no**, **1**, or **2** zeros (Solutions).*
- *The zeros of a quadratic equations can be found by factoring the quadratic expression.*

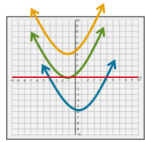**Find zeros of Quadratic Equations by factoring.**

❶ Set the right-hand side equal to zero, if necessary.
❷ Factor the quadratic Equation, if necessary.
❸ Set up two equations using the Zero Product Property.
❹ Solve each equation.

CFU

How do you set up equations using the Zero Product Property?

Solve: $x^2 + 2x - 15 = 0$

$6x^2 + x - 2 = 0$

The **Zero Product Property** states that if the product of two unknown numbers equals zero, one or both of the numbers is equal to zero.

- A **quadratic equations** can have **no**, **1**, or **2** zeros (Solutions).
- The zeros of a quadratic equations can be found by factoring the quadratic expression.

1 *Finding the zeros of a equation will help you solve real world problems.*

Using quadratic models, we can estimate the distance of a homerun.
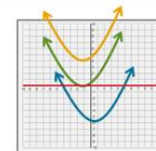
400 ft

0 ft

2 *Finding the zeros of a equation will help you do well on tests.*

Sample Test Question:

32. What is the solution to the following equation?

$$x^2 + 6x = 7$$

A $x = -7$
B $x = 1$
C $x = -7$ and $x = -1$
D $x = -7$ and $x = 1$

The **Zero Product Property** states that if the product of two unknown numbers equals zero, one or both of the numbers is equal to zero.

- A **quadratic equations** can have **no**, **1**, or **2** zeros (Solutions).
- The zeros of a quadratic equations can be found by factoring the quadratic expression.

Skill Closure

Solve quadratic equations by factoring.

❶ Set the right-hand side equal to zero, if necessary.
❷ Factor the quadratic equation, if necessary.
❸ Set up two equations using the Zero Product Property.
❹ Solve each equation.
❺ Read the answer. _The solutions to the quadratic equation are_ _____

Word Bank

quadratic
equation
polynomial
Zero Product
Property

Summary Closure

What did you learn today about solving quadratic equations by factoring? (Pair-Share)
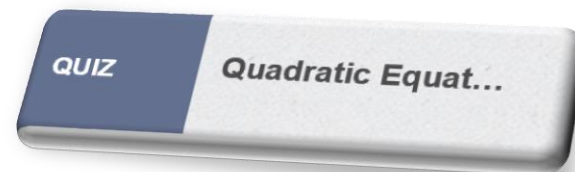Use words from the word bank.

Quiz-1

1) Web: http://exittix.com
2) Tap on "Class Code"

CLASS CODE
Period-1: fgi041129
Period-2: djp814489
Period-4: hbz898794
Period-7: xcd227660

QUIZ   Quadratic Equat...

Solve quadratic equations by factoring.

my.hrw.com

6.4 Factoring Polynomials - Homework