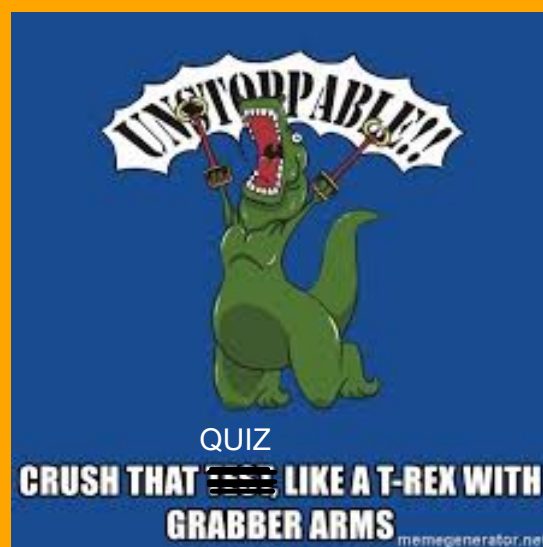


Thursday 8/22/19

1. Take out HW/Calendar
2. Factoring Questions
3. **FACTORING QUIZ!**
4. Solve by Factoring Notes
5. HW/Practice



Topic: Solving by Factoring

Name: _____

What am I learning today?

Warm-Up:

Warm-up: Do you remember how to solve for a variable? Solve each equation.

1) $x + 5 = 9$
 $-5 -5$
 $x = 4$

2) $x - 2 = 0$
 $+2 +2$
 $x = 2$

3) $3x - 4 = 11$ $x = 5$
 $+4 +4$
 $3x = 15$
 $\div 3 \div 3$

4) $7x = 0$ $x = 0$
 $\div 7 \div 7$

Vocabulary

Expression

An Expression is the sum or difference of two or more terms. An expression does not have an equal sign.

Equation

An Equation has an equal sign with an expression on both side(s) of the equal sign. either.

Solving

Solving means you are finding the value of an unknown variable. DO NOT add an equal sign if there is not one already. If there is no equal sign, you are probably not solving and the directions likely tell you to simplify/factor. If there is an equal sign, follow the steps for solving an equation.

Steps

Solve by Factoring with a GCF

- 1) Move all the terms to the same side of the equal sign so the expression is equal to 0.
- 2) Factor out the GCF and set the result equal to zero.
- 3) Set each factor equal to equal.
- 4) Solve for the missing variable with each factor.

Zero Product Prop:

$$\frac{0}{\#} \times \frac{\#}{0} = 0$$

$$\frac{\#}{0} \times \frac{0}{\#} = 0$$

$$\frac{0}{0} \times \frac{0}{0} = 0$$

Examples

Solve by Factoring with a GCF

Solve by Factoring:

Ex 1: $3x^2 - x = 0$
 $x(3x - 1) = 0$
 $x = 0$ $3x - 1 = 0$
 $3x = 1$
 $\div 3 \div 3$
 $x = \frac{1}{3}$

Ex 2: $40x^2 + 10x = 0$
 $10x(4x + 1) = 0$
 $10x = 0$ $4x + 1 = 0$
 $\div 10 \div 10$ $\div 4 \div 4$
 $x = 0$ $x = -\frac{1}{4}$

Topic: Solve by Factoring

Date: _____

Steps

Solve Trinomials by Factoring

Steps:

- 1) Move all terms to the same side of the equal sign so that it is equal to zero. ($=0$)
- 2) Factor completely !! Remember to look for a GCF first.
- 3) Set each factor equal to 0.
- 4) Solve each equation for the variable.
- 5) Check answers by plugging into the original equation to make sure the answers work!!

Examples

Solve by Factoring

Ex3: $x^2 - 5x - 6 = 0$

$(x^2 - 6x)(x - 6)$
 $x(x - 6) + 1(x - 6)$
 $(x + 1)(x - 6) = 0$

$x + 1 = 0$
 $x = -1$

$x - 6 = 0$
 $x = 6$

Ex4: $6x^2 - 24x = -18$

$6x^2 - 24x + 18 = 0$

$6(x^2 - 4x + 3) = 0$

$(x^2 - 1x)(-3x + 3)$

$x(x - 1) - 3(x - 1)$

$(x - 3)(x - 1) = 0$

$x - 3 = 0$
 $x = 3$

$x - 1 = 0$
 $x = 1$

Ex5: $2x^2 - 7x + 3 = 0$

$(2x^2 - 6x)(-x + 3) = 0$

$2x(x - 3) - 1(x - 3) = 0$

$(2x - 1)(x - 3) = 0$

$2x - 1 = 0$
 $x = \frac{1}{2}$

$x - 3 = 0$
 $x = 3$

Ex6: $z^2 + 2z + 8z + 16 = 0$

$z^2(z + 2) + 8(z + 2)$

$(z^2 + 8)(z + 2) = 0$

$z^2 + 8 = 0$
 $z^2 = -8$
 $z = \pm 2i\sqrt{2}$

$z + 2 = 0$
 $z = -2$

Ex7: $x^2 - 4 = 0$

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

$x = -2$
 $x = 2$

Ex8: $3x^2 - 108 = 0$

$3(x^2 - 36) = 0$

$3(x + 6)(x - 6) = 0$

$x + 6 = 0$
 $x = -6$

$x - 6 = 0$
 $x = 6$

Summary

Summarize the lesson in your own words