Post-It

Check!!!

3/5/2021

Solve the quadratic equation: GCF

$$2x^2 + 3x = 0$$

$$x$$

$$x(2x + 3) = 0$$

$$x = 0 \qquad 2x + 3 = 0$$

$$2x = -3$$

$$x = -3/2$$

or

$$x = -1.5$$

Post-It Check!!!

$$2x^2 - 2x - 14 = -2$$

$$\frac{2x^2 - 2x - 12 = 0}{2}$$

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

$$-6$$

$$-3 \qquad 2$$

$$-1$$

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

$$x = 3 ; \; x = -2$$

Math Talks EOC Type Questions

3/8/2021

1. Which represents the fully factored form of the following quadratic expression?

$$6x^2 - 13x - 5$$

A. $(x-1)(5x-12)$

B. $(3x-5)(3x+1)$

C. $(2x-3)(4x-1)$

D. $(2x-5)(3x+1)$

-30

ac

$+2 \quad -15$

5

-13

$3x + 1$

$2x \quad 6x^2 \quad 2x$

$-5 \quad -15x \quad -5$

2. Which represents the factored form of the polynomial below?

$(a+b)(a-b)$

$x^4 - 16$

$(x^2 + 4)(x^2 - 4)$

A. $(x^2 - 4)(x^2 - 4)$

B. $(x - 2)^2 (x + 2)^2$

$(x^2 + 4)(x + 2)(x - 2)$

C. $(x - 2)^2(x^2 + 2)$

D. $(x - 2)(x + 2)(x^2 + 4)$

3. For what values of x will the graph of the following function cross the x-axis?

Solve for x

$f(x) = 4x^2 + 20x + 16$

$4(x^2 + 5x + 4)$

A. $(1, 4)$

B. $(-1, 4)$

C. $(-4, 1)$

D. $(-4, -1)$

$$\begin{array}{ccc} & 4 & \\ 1 & \times & 4 \\ & 5 & \end{array}$$

$4(x + 1)(x + 4) = 0$

$x + 1 = 0 \quad x + 4 = 0$

$\boxed{x = -1 \; ; \; x = -4}$

Essential Question   3/8/2021

- How can I solve quadratic equations by finding square roots?

Learning Target

Solve Quadratic Equations by Finding Square Roots

Opening: Solving by Taking Square Roots

Remember: When taking square roots to solve for x, you get a positive and negative answer!

Steps for Solving Quadratics by Finding Square Roots

1. Add or Subtract any constants that are on the same side of x^2.
2. Multiply or Divide any constants from x^2 terms. "Get x^2 by itself"
3. Take square root of both sides and set equal to positive and negative roots (±).

Ex: $x^2 = 25$
$\sqrt{x^2} = \sqrt{25}$
$x = \pm 5$
$x = +5$ and $x = -5$

REMEMBER WHEN SOLVING FOR X YOU GET A ___+___ AND ___−___ ANSWER!

$I\ do/You\ do$ $\sqrt{x^2} = |x|$

Solve the following for x:

1) $\sqrt{x^2} = \sqrt{49}$

$$X = \pm 7$$

2) $x^2 = 20$

$$x = \pm 2\sqrt{5}$$

3) $x^2 = 0$

$$X = 0$$

4) $3x^2 = 108$
$$\frac{3}{3} \qquad \frac{3}{3}$$
$$x^2 = 36$$
$$X = \pm 6$$

5) $x^2 - 11 = 14$
$$+11 \quad +11$$
$$\sqrt{x^2} = \sqrt{25}$$
$$X = \pm 5$$

6) $7x^2 - 6 = 57$
$$+6 \quad +6$$
$$\frac{7x^2 = 63}{7}$$
$$\sqrt{x^2} = \sqrt{9}$$
$$X = \pm 3$$

7) $4x^2 - 6 = 74$
$$+6 \quad +6$$
$$\frac{4x^2 = 80}{4} \qquad \frac{}{4}$$
$$X^2 = 20$$
$$x = \pm\sqrt{4 \times 5}$$
$$\downarrow$$
$$②$$
$$X = \pm 2\sqrt{5}$$

Practice - You do @ Your Boards!!!

1. $2x^2 + 8 = 170$

$$\frac{2x^2}{2} = \frac{162}{2}$$

$$\sqrt{x^2} = \sqrt{81}$$

$$x = \pm 9$$

2. $10x^2 + 9 = 499$

$$\frac{10x^2}{10} = \frac{490}{10}$$

$$\sqrt{x^2} = \sqrt{49}$$

$$x = \pm 7$$

3. $3x^2 + 7 = 301$

$$\frac{3x^2}{3} = \frac{294}{3}$$

$$\sqrt{x^2} = \sqrt{98}$$

$$x = \pm\sqrt{2 \times 49}$$

$$\overset{7}{}$$

$$x = \pm 7\sqrt{2}$$

Radical form

0:00:00

Solving by Finding Square Roots (More Complicated)

Steps for Solving Quadratics by Finding Square Roots with Parentheses

1. Add or Subtract any constants outside of any parenthesis.
2. Multiply or Divide any constants around parenthesis/squared term. "Get ( )² by itself"
3. Take square root of both sides and set your expression equal to BOTH the positive and negative root
($\pm$). Ex: $(x + 4)^2 = 25$

$$\sqrt{(x+4)^2} = \sqrt{25}$$
$$(x + 4) = \pm 5$$
$$x + 4 = +5 \text{ and } x + 4 = -5$$
$$x = 1 \text{ and } x = -9$$

4. Add, subtract, multiply, or divide any remaining numbers to isolate x.

REMEMBER WHEN SOLVING FOR X YOU GET A POSITIVE AND NEGATIVE ANSWER!

Solve the following for x:

1) $(x - 4)^2 = 81$ *I do*

$$X - 4 = \pm 9$$

$$X - 4 = 9 \ ; \ X - 4 = 9$$
$$+4 \quad +4 \qquad +4 \quad +4$$

$$\boxed{X = 13} \ ; \ \boxed{X = -5}$$

We do

2) $(p - 4)^2 = 16$

$$p - 4 = \pm 4$$
$$p = 4 \pm 4$$
$$\boxed{p = 8 \ ; \ 0}$$

You do

3) $10(x - 7)^2 = 440$

$$\frac{10}{10} \qquad \frac{}{10}$$

$$\sqrt{(x-7)^2} = \sqrt{44}$$

$$X - 7 = \pm \sqrt{4 \times 11}$$

$$X - 7 = \pm 2\sqrt{11}$$

$$\boxed{X = 7 \pm 2\sqrt{11}}$$

Practice - You do:

4) $\frac{1}{2}(x+8)^2 = 14$ (2)

$(x+8)^2 = \sqrt{28}$

$x+8 = \pm\sqrt{4 \times 7}$

$x+8 = \pm 2\sqrt{7}$

$x = -8 \pm 2\sqrt{7}$

5) $-2(x+3)^2 - 16 = -48$
   $+16 \quad +16$

$-2(x+3)^2 = -32$
$\frac{-2(x+3)^2}{-2} = \frac{-32}{-2}$

$(x+3)^2 = \sqrt{16}$

$x+3 = \pm 4$

$x = -3 \pm 4$

$x = -3+4 \; ; \; x = -3-4$

$x = 1 \text{ and } x = -7$

Practice - You do:

6) $3(x-4)^2 + 7 = 67$

$\qquad \qquad -7 \quad -7$

$$\frac{3(x-4)^2}{3} = \frac{60}{3}$$

$$\sqrt{(x-4)^2} = \sqrt{20}$$

$$x - 4 = \pm\sqrt{4 \times 5}$$

$$\textcircled{2}$$

$$x - 4 = \pm 2\sqrt{5}$$

$$\boxed{x = 4 \pm 2\sqrt{5}}$$

Attachments

Functions notation.ppt

Functions Practice HW.docx

Functions notation notes.ppt