10.6B

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3:46 PM

Which method to use & when! Solving Quadratics

Our Methods

1. factoring & ZPP
2. quadratic formula
3. completing the square
4. square root method
5. graphing (x-intercepts)

Solve the following. Note: you must only use each method once!

SQUARE ROOT METHOD

① $6x^2 - 216 = 0$

$+216 \quad +216$

$\frac{6x^2}{6} = \frac{216}{6}$

$\sqrt{x^2} = \sqrt{36}$

$x = \pm 6$

COMPLETE THE SQUARE

② $5x^2 - 10x = 0$

$\frac{5(x^2 - 2x)}{5} = \frac{0}{5}$

$\frac{-2}{2} = (-1)^2 = 1$

$x^2 - 2x = 0$

$x^2 - 2x + 1 = 0 + 1$

$\sqrt{(x-1)^2} = \sqrt{1}$

$x - 1 = \pm 1$

$+1 \quad +1$

$x = 1 \pm 1$

$x = 0, 2$

FACTOR

③ $x^2 + 8x + 7 = 0$

$(x+7)(x+1) = 0$

$x+7=0 \quad x+1=0$

$x = -7, -1$

GRAPHING

④ $x^2 - 6x + 1 = 0$

$x = .17, 5.83$

QUADRATIC FORMULA

⑤ $-9x^2 + 10x = 5$

-5

$-9x^2 + 10x - 5 = 0$

$a = -9 \quad b = 10 \quad c = -5$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x = \frac{-10 \pm \sqrt{10^2 - 4(-9)(-5)}}{2(-9)}$$

$$x = \frac{-10 \pm \sqrt{-80}}{-18}$$

NO REAL SOLUTIONS

① $x^2 + 7x - 80 = 0$

graphing or quadratic

② $5x^2 + x - 9 = 0$

quadratic or graphing

③ $x^2 - 16x = -64$

Factoring Completing the square

④ $x^2 + 6x = 14$

completing the square

⑤ $x^2 - 49 = 0$

square root method