



Math Virtual Learning

Algebra 1 S2

April 23rd, 2020



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Lesson: April 23rd, 2020

Learning Target:

Students will solve quadratics using the quadratic formula.



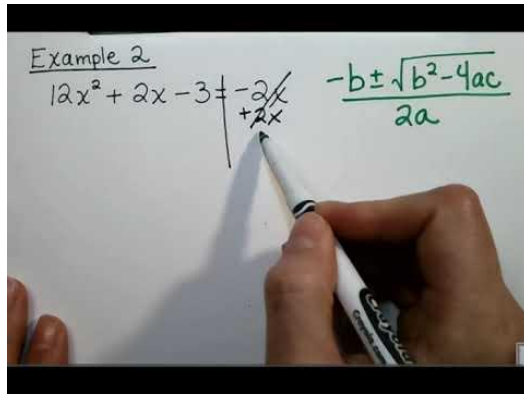
Warm-Up

1. [Click here](#) to practice the number of solutions for the quadratics given.
*Get four **green dots** in a row
2. [Click here](#) to practice identifying the type of function given.
*Set timers to beat your scores.

Today's Lesson

In today's lesson we will continue solving quadratics by using the quadratic formula.

Go ahead and click below to get started with today's video.





Independent Practice

1) $18x^2 + 2x - 2 = 9x^2$

2) $7x^2 - 11x + 11 = 6x^2 - 11$

3) $3x^2 + 4x - 3 = -7x^2$

4) $5x^2 + 10x - 76 = 8x - 4$

5) $8x^2 - 2 = 5x$

6) $9x^2 + 2x - 12 = 6x$

7) $10x^2 + 10 = -12x$

8) $x^2 - x - 14 = -10$

Independent Practice

1) $18x^2 + 2x - 2 = 9x^2$

$$18x^2 + 2x - 2 = \cancel{9x^2}$$

$$-9x^2 \qquad -9x^2$$

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

$$A=9 \quad B=2 \quad C=-2$$

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

$$x = \frac{-2 \pm \sqrt{76}}{18}$$

$$x = \frac{-2 \pm 2\sqrt{19}}{18}$$

$$x = \frac{-1 \pm \sqrt{19}}{9}$$

Simplifies?
 $\sqrt{76}$
 $\sqrt{4 \cdot 19}$
 $2\sqrt{19}$

Reduce? by 2

Independent Practice

$$2) 7x^2 - 11x + 11 = 6x^2 - 11$$

$7x^2 - 11x + 11 = \cancel{6x^2} - 11$
 $\cancel{-6x^2} \quad +11 \quad \cancel{-6x^2} + 11$
 $x^2 - 11x + 22 = 0$
 $A=1 \quad B=-11 \quad C=22$

$$x = \frac{11 \pm \sqrt{(-11)^2 - 4(1)(22)}}{2(1)}$$

$$x = \frac{11 \pm \sqrt{33}}{2}$$

$\sqrt{33}$ doesn't simplify
fraction is reduced.

Independent Practice

3) $3x^2 + 4x - 3 = -7x^2$

$3x^2 + 4x - 3 = -7x^2$
 $+7x^2 \qquad \qquad \qquad +7x^2$
 $10x^2 + 4x - 3 = 0$
 $A=10 \quad B=4 \quad C=-3$

$$x = \frac{-4 \pm \sqrt{(4)^2 - 4(10)(-3)}}{2(10)}$$

$$x = \frac{-4 \pm \sqrt{136}}{20}$$

$$x = \frac{-4 \pm 2\sqrt{34}}{20}$$

$$x = \frac{-2 \pm \sqrt{34}}{10}$$

Reduce by 2

$\sqrt{136}$
 $\sqrt{4 \sqrt{34}}$
 $2\sqrt{34}$

Independent Practice

4) $5x^2 + 10x - 76 = 8x - 4$

$$5x^2 + 10x - 76 = \cancel{8x} - \cancel{4}$$

$$-8x + 4 \quad -8x + 4$$

$$5x^2 + 2x - 72 = 0$$

$$A=5 \quad B=2 \quad C=-72$$

$$x = \frac{-2 \pm \sqrt{(2)^2 - 4(5)(-72)}}{2(5)}$$

$$x = \frac{-2 \pm \sqrt{1444}}{10} \quad \rightarrow \sqrt{1444} = 38$$

$$x = \frac{-2 \pm 38}{10}$$

$$x = \frac{-2 + 38}{10} = \frac{36}{10}$$

$$x = \frac{-2 - 38}{10} = \frac{-40}{10}$$

$$x = 18/5$$

$$x = -4$$

Independent Practice

5) $8x^2 - 2 = 5x$

Handwritten solution for the quadratic equation $8x^2 - 2 = 5x$. The work is shown on lined paper and includes the following steps:

- The original equation $8x^2 - 2 = 5x$ is written, with $-5x$ subtracted from both sides to get $8x^2 - 5x - 2 = 0$. The $-5x$ terms are written in red and crossed out.
- The coefficients are identified: $A=8$, $B=-5$, and $C=-2$.
- The quadratic formula is applied: $x = \frac{5 \pm \sqrt{(-5)^2 - 4(8)(-2)}}{2(8)}$. The 5 and $2(8)$ are written in red.
- The formula is simplified to $x = \frac{5 \pm \sqrt{89}}{18}$, which is boxed in red.
- A note states: " $\sqrt{89}$ doesn't simplify & fraction is reduced."

Independent Practice

6) $9x^2 + 2x - 12 = 6x$

$9x^2 + 2x - 12 = \cancel{6x}$
 $\quad \quad \quad -6x \quad \quad \quad -6x$

$9x^2 - 4x - 12 = 0$
 $A = 9 \quad B = -4 \quad C = -12$

$x = \frac{4 \pm \sqrt{(-4)^2 - 4(9)(-12)}}{2(9)}$

$x = \frac{4 \pm \sqrt{448}}{18}$

$x = \frac{4 \pm 8\sqrt{7}}{18}$

$x = \frac{2 \pm 4\sqrt{7}}{9}$

Reduces by 2

Independent Practice

7) $10x^2 + 10 = -12x$

$$10x^2 + 10 = -12x$$

$+12x$ $+12x$

$$10x^2 + 12x + 10 = 0$$

$A=10$ $B=12$ $C=10$

$$x = \frac{-12 \pm \sqrt{(12)^2 - 4(10)(10)}}{2(10)}$$

$$x = \frac{-12 \pm \sqrt{-256}}{20}$$

\swarrow Negative #

No Real Solutions

Independent Practice

8) $x^2 - x - 14 = -10$

The image shows a handwritten solution for the quadratic equation $x^2 - x - 14 = -10$ on lined paper. The student first rewrites the equation as $x^2 - x - 4 = 0$ by adding 10 to both sides. They then identify the coefficients $A=1$, $B=-1$, and $C=-4$. The quadratic formula is applied, resulting in $x = \frac{1 \pm \sqrt{(-1)^2 - 4(1)(-4)}}{2(1)}$. This is simplified to $x = \frac{1 \pm \sqrt{17}}{2}$, which is boxed in red. A note explains that $\sqrt{17}$ is simplified and the fraction is reduced.

$$x^2 - x - 14 = -10$$

$+10 \quad +10$

$$x^2 - x - 4 = 0$$

$A=1 \quad B=-1 \quad C=-4$

$$x = \frac{1 \pm \sqrt{(-1)^2 - 4(1)(-4)}}{2(1)}$$
$$x = \frac{1 \pm \sqrt{17}}{2}$$

* $\sqrt{17}$ is simplified & fraction is reduced.



Additional Practice:

Click on the links below to get additional practice and to check your understanding!

[Extra Practice](#) for using the quadratic formula

*Get four **green dots** in a row

[Quizizz](#) for using the quadratic formula.

*You can play the game or use the flashcards to practice.