

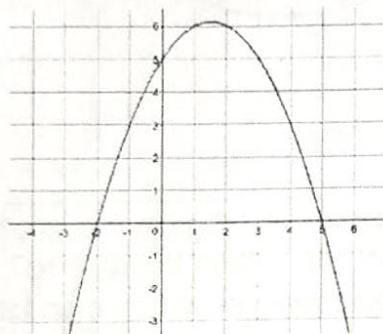
Name: _____ Date: _____



Mixed up Quadratic Solving! Each page will be a mixture of different types of problems. Complete every problem on the page before getting checked off and moving to a different color.

GOAL: Can you ACCURATELY complete 2 sheets?

1) What are the solutions to the graph shown below?



$x = -2$
 $x = 5$

2) Use the quadratic formula to solve the equation $x^2 + 3x - 1 = 0$

$$x = \frac{-3 \pm \sqrt{(3)^2 - 4(1)(-1)}}{2(1)}$$

$$x = \frac{-3 \pm \sqrt{13}}{2}$$

3) Solve by factoring:

$$3x^2 + 20x + 12 = 0$$

$$(x + \frac{18}{3})(x + \frac{2}{3}) = 0$$

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

$$x = -6 \quad x = -\frac{2}{3}$$

$\frac{36}{1, 36}$
 $2, 18$

4) What are the solutions to the following equation?

$$3(x - 4)^2 + 4 = 25$$

$$3(x^2 - 8x + 16) + 4 = 25$$

$$3x^2 - 24x + 48 + 4 = 25$$

$$3x^2 - 24x + 52 = 25$$

$$-25 \quad -25$$

$$3x^2 - 24x + 27 = 0$$

$$x = \frac{24 \pm \sqrt{(-24)^2 - 4(3)(27)}}{2(3)}$$

$$x = \frac{24 \pm 6\sqrt{7}}{6}$$

$$x = 4 \pm \sqrt{7}$$

5) A construction worker was standing on top of a new bridge being built over I-75. He accidentally dropped his hammer from the top of the bridge. The path that the hammer took to hit the ground can be modeled by the equation $h(t) = -16t^2 + 35$. About how many seconds will it take for his hammer to hit the ground?

$$-16t^2 + 35 = 0$$

$$a = -16$$

$$b = 0$$

$$c = 35$$

$$x = \frac{0 \pm \sqrt{(0)^2 - 4(-16)(35)}}{2(-16)}$$

$$x = \frac{\pm 47.33}{-32}$$

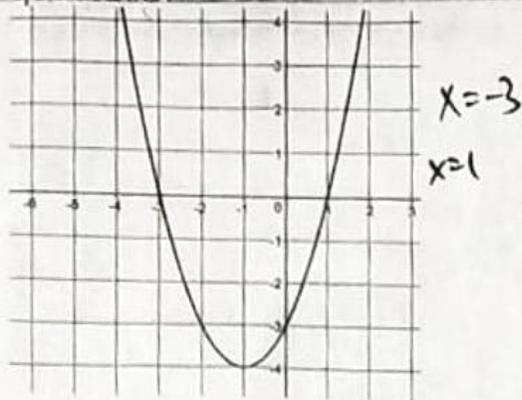
$$\rightarrow -1.48$$

$$\rightarrow 1.48$$

ABOUT 1.48
SECONDS

FLIP TO BACK!

6) What are the solutions to the following quadratic?



7) Solve using any method $x^2 - 24 = 0$

$$a=1$$

$$b=0$$

$$c=-24$$

$$x = \frac{0 \pm \sqrt{(0)^2 - 4(1)(-24)}}{2}$$

$$x = \frac{\pm 4\sqrt{6}}{2}$$

$$y = \pm 2\sqrt{6}$$

8) The same clumsy construction worker from problem 5 is now working on the crane to help move beams into place. He had to go to the top of the crane in order to check the safety locks. While up there he dropped his screwdriver which can be modeled by the equation: $h(t) = -16t^2 + 162$.

a) How high is the crane?

$$162 \text{ Feet}$$

b) What is the height of the screwdriver after 2 seconds?

$$-16(2)^2 + 162$$

$$98 \text{ Feet}$$

c) This unlucky clumsy construction worker parked his truck under the crane. The height of the truck is 5 feet. How long will it take to the screwdriver to hit the top of his car?

$$-16t^2 + 162 = 5$$

$$\quad \quad -5 \quad -5$$

$$-16t^2 + 157 = 0$$

$$\frac{0 \pm \sqrt{(0)^2 - 4(-16)(157)}}{2(-16)}$$

$$\frac{0 \pm 100.24}{-32} \rightarrow -3.13$$

$$\rightarrow \textcircled{3.13}$$

ABOUT 3.13 SECONDS

WHO IS THAT HISPANIC WOMAN? DR. ELLEN OCHOA- THE FIRST HISPANIC WOMAN IN THE WORLD TO GO INTO SPACE. SHE IS ALSO THE FIRST HISPANIC PERSON TO RUN NASA'S JOHNSON SPACE CENTER



Red up Quadratic Solving! Each page will be a mixture of different types of problems. This will help you transition between each type of problem. Complete every problem on the page before getting checked off and moving to a different color.

GOAL: Can you complete 2 sheets?

1) Find the zeros of the following quadratic

$x=0$
 $x=1$

1) Use the quadratic formula to solve $x^2 + 11x + 2 = 0$

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

$$x = \frac{-11 \pm \sqrt{113}}{2}$$

2) Solve by factoring $5x^2 + 16x + 3 = 0$

$$(x + \frac{1}{5})(x + \frac{3}{5}) = 0$$

$$(x + 3)(5x + 1) = 0$$

$x = -3$
 $x = -\frac{1}{5}$

3) Solve using any method $2(x-5)^2 + 6 = 32$

$$2(x^2 - 10x + 25) + 6 = 32$$

$$2x^2 - 20x + 50 + 6 = 32$$

$$2x^2 - 20x + 56 = 32$$

$$2x^2 - 20x + 24 = 0$$

$a=2$
 $b=-20$
 $c=24$

$$x = \frac{20 \pm \sqrt{(-20)^2 - 4(2)(24)}}{2(2)}$$

$$x = \frac{20 \pm 4\sqrt{13}}{4}$$

$$x = 5 \pm \sqrt{13}$$

4) Solve by any method $x^2 + 18x + 5 = -60$

$$x^2 + 18x + 65 = 0$$

$$\frac{-18 \pm \sqrt{(18)^2 - 4(1)(65)}}{2(1)}$$

$$\frac{-18 \pm 8}{18}$$

$\frac{-5}{9}$
 $\frac{-13}{9}$

FLIP TO BACK!

5) A basketball has been stuck on the top of the roof of Sprayberry for months. Finally a big gust of wind came and knocked the ball down. It can be modeled by the equation $h(t) = -16t^2 + 26$. How many seconds does it take for the basketball to hit the ground?

About 1.27 Seconds

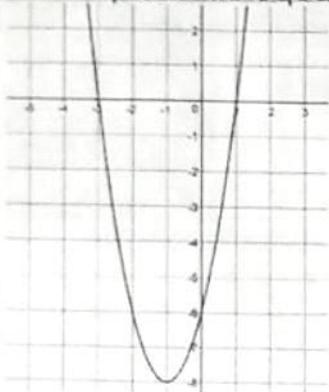
$$-16t^2 + 26 = 0$$

$$0 = \frac{-0 \pm \sqrt{(0)^2 - 4(-16)(26)}}{2(-16)}$$

$$\frac{1.13}{-32} \rightarrow -0.27$$

$$\rightarrow 1.27$$

6) What are the solutions to the quadratic equation?



$$x = -3$$

$$x = 1$$

7) Ayanna climbed to the top of Kennesaw Mountain and threw a cookie off the top (why you throwing cookies Ayanna?!) The path of the cookie can be modeled by the equation $h(t) = -16t^2 + 64t + 1808$

a) How tall is Kennesaw Mountain?

1808 feet

b) At what height is the cookie after 10 seconds?

$$-16(10)^2 + 64(10) + 1808$$

848 feet

c) How long will it take the cookie to reach the bottom of the mountain?

$$-16t^2 + 64t + 1808 = 0$$

$$\frac{-64 \pm \sqrt{(64)^2 - 4(-16)(1808)}}{2(-16)}$$

$$\frac{-64 \pm 346.13}{-32} \rightarrow -8.82$$
$$\rightarrow 12.82$$

About 12.82 seconds

WHO IS THAT HISPANIC WOMAN? RITA MORENO- A PIONEER FOR ALL HISPANIC ACTORS AND ACTRESSES. HER CAREER SPANNED OVER 70 YEARS AND IS ONE OF ONLY 23 PEOPLE EVER TO HAVE ACHIEVED AN AWARD IN EVERY MAJOR ACTING CATEGORY- AN OSCAR, AN EMMY, A GRAMMY, AND A TONY.

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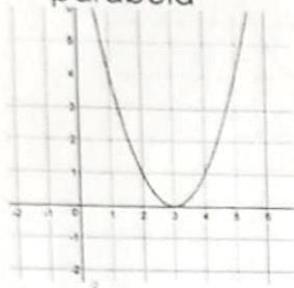
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Waxed up Quadratic Solving! Each page will be a mixture of different types of problems. This will help you transition between each type of problem. Complete every problem on the page before getting checked off and moving to a different color.



GOAL: Can you complete 2 sheets?

1) Find the roots of the following parabola



$x=3$

1) Dr. Oldham is starting up a new company that sells custom Lego mini-figures that match what you look like. Her weekly profit can be measured by the equation $x^2 - 30x - 400$. For what number of items would Dr. Oldham's profit be equal to zero?

$x^2 - 30x - 400 = 0$

$(x - 40)(x + 10) = 0$

$x = 40 \quad x = -10$

40 items

2) Use the quadratic formula to solve

$x^2 + 9x - 1 = 0$

$$\frac{-a \pm \sqrt{(a)^2 - 4(b)(c)}}{2a}$$

$$x = \frac{-9 \pm \sqrt{81}}{2}$$

3) Solve using any method

$(x + 2)^2 - 8 = 88$

$x^2 + 4x + 4 + 8 = 88$

$x^2 + 4x - 84 = 88$

$x^2 + 4x - 92 = 0$

$a=1, b=4, c=-92$
$$\frac{-4 \pm \sqrt{(4)^2 - 4(1)(-92)}}{2(1)}$$

$x = \frac{-4 \pm 8\sqrt{6}}{2}$

$x = -2 \pm 4\sqrt{6}$

4) Solve using any method

$x^2 - 8x - 5 = 15$

1, 20
3, 10

$x^2 - 8x - 20 = 0$

$(x - 10)(x + 2) = 0$

$x = 10$
 $x = -2$

5) Solve by factoring

$2x^2 + 11x + 5 = 0$

$(x + \frac{10}{2})(x + \frac{1}{2})$

$(x + 5)(2x + 1) = 0$

$x = -5 \quad x = -\frac{1}{2}$

FLIP TO BACK!

- 6) Kayla has decided that she wants to start working on her diving in addition to being part of the swim team. She determined that the path of jumping from the high dive can be modeled by the equation
- $$h(t) = -16t^2 + 42t + 33$$

- a) How tall is high dive platform?

33 feet

- b) How many feet above the surface of the pool will Kayla be after 3 seconds?

$$-16(3)^2 + 42(3) + 33$$

15 feet

- c) How long will it take for Kayla to hit the water?

$$-16t^2 + 42t + 33 = 0$$

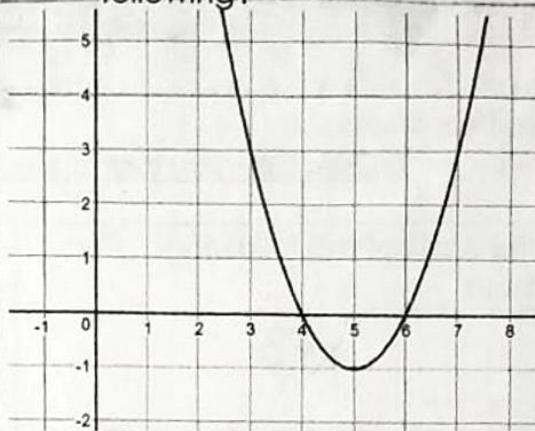
$$\frac{-42 \pm \sqrt{(42)^2 - 4(-16)(33)}}{2(-16)}$$

$$\frac{-42 + 62.26}{-32} \rightarrow -0.63$$

$$\frac{-42 - 62.26}{-32} \rightarrow 3.23$$

ABOUT 3.23 SECONDS

- 7) What are the solutions to the following?



$$x = 4$$

$$x = 6$$

WHO IS THAT HISPANIC WOMAN? SONIA SOTOMAYOR- THE FIRST HISPANIC PERSON TO SERVE ON THE UNITED STATES SUPREME COURT. SHE ATTENDED BOTH PRINCETON AND YALE AND NOW SITS AS JUDGE ON THE HIGHEST COURT IN OUR COUNTRY!