

# Only to be used for arranged hours

Math 31

Activity # 12

## "The Quadratic Formula"

Your Name: \_\_\_\_\_

### Warm-Up

1)  $\sqrt{24}$

2)  $\sqrt{36 - 9}$

3)  $\sqrt{36 - 16}$

4) Write a quadratic equation in standard form: \_\_\_\_\_

5a) State the Quadratic Formula: \_\_\_\_\_

Is the following statement correct? Write "yes" or "no".

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

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

6) Rewrite the following quadratic equation in standard form. State the values of  $a$ ,  $b$ , and  $c$ .

$$2x^2 - 6x = 4$$

Value of  $a$  = \_\_\_\_\_ value of  $b$  = \_\_\_\_\_ value of  $c$  = \_\_\_\_\_

7) In the equation below, first clear the fractions and then state the

Value of  $a$  = \_\_\_\_\_ value of  $b$  = \_\_\_\_\_ value of  $c$  = \_\_\_\_\_

$$\frac{-5}{6}x^2 - \frac{3}{4}x - \frac{1}{8} = 0$$

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**Instructions:** Using the quadratic formula, solve the four quadratic equations below and then find the sum of the two roots.

8)  $6x^2 - 13x + 6 = 0$

Value of  $a =$  \_\_\_\_\_,  $b =$  \_\_\_\_\_,  $c =$  \_\_\_\_\_

The two solutions (roots) \_\_\_\_\_

The sum of the roots is \_\_\_\_\_

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

Value of  $a =$  \_\_\_\_\_,  $b =$  \_\_\_\_\_,  $c =$  \_\_\_\_\_

The two solutions (roots) \_\_\_\_\_

The sum of the roots is \_\_\_\_\_

10)  $-4x^2 - 8x = 2$

Value of  $a =$  \_\_\_\_\_,  $b =$  \_\_\_\_\_,  $c =$  \_\_\_\_\_

The two solutions (roots) \_\_\_\_\_

The sum of the roots is \_\_\_\_\_

11) In problems #8 thru #10, by analyzing the values of  $a$  and  $b$ , by finding the sum of the roots, discover a relationship between  $a$  and  $b$  and the sum of the roots? Work to develop the "sum of the roots formula".

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12)  $(2x - 3)^2 = 6$

Value of  $a =$  \_\_\_\_\_,  $b =$  \_\_\_\_\_,  $c =$  \_\_\_\_\_

The two solutions (roots) \_\_\_\_\_

The sum of the roots is \_\_\_\_\_

The sum of the sums of the roots in problems #8, 9, 10 and 12 is \_\_\_\_\_