

Name: Solutions

Functions 11 – U3 Practice Quiz: Zeros of Quadratic Functions K ___/8 C ___/1

(Formative)

1. What is a zero of a quadratic function? You can answer with words or with a picture. C ___/1

A zero is **WHERE** (x-value) the function has (WHAT?) a value of zero. **y-value**

 A zero of a quadratic function is where the function has a value of zero. In the graph, x = -3, 2 are zeros at the points (-3, 0), (2, 0).

2. Determine the zero(s) (if they exist) by converting the function to factored form. K ___/3

$$f(x) = x^2 - 7x - 30$$

$$\Rightarrow x^2 - 7x - 30 = 0$$

x	+
-30	-7
-10	+3

$$\Rightarrow (x-10)(x+3) = 0$$

$$\therefore x-10 = 0 \text{ OR } x+3 = 0$$

$$\Rightarrow x = 10 \text{ OR } x = -3.$$

3. Using the quadratic formula determine the zero(s) (if they exist) of the given function. K ___/3

$$g(x) = 4x^2 - 12x + 9$$

$a=4 \quad b=-12 \quad c=9$

$$\text{Q.F.: } x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

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

$$= \frac{12 \pm \sqrt{144 - 144}}{8}$$

$$= \frac{12}{8}$$

$$= \frac{3}{2}$$

\therefore the single zero is $x = \frac{3}{2}$

4. How many zeros does $p(x) = -3x^2 + x + 5$ have? Use the discriminant. K ___/2

$a=-3 \quad b=1 \quad c=5$

$$b^2 - 4ac = (1)^2 - 4(-3)(5)$$

$$= 1 + 60$$

$$= 61 > 0$$

$\therefore p(x)$ has two zeros since the discriminant is positive.