

Algebra 2 Exam III Quadratic Unit - Review Name: Key

1. Analyze the quadratics below for the critical values listed:

$g(x) = x^2 - 9x + 20$   
 y-intercept: (0, 20)  
 axis of symmetry:  $X = 4.5$   
 vertex:  $(4.5, -4)$   
 x-intercept(s):  $(4, 0)(5, 0)$

$t(x) = -4x^2 - 12x$   
 $h = \frac{-b}{2a}$   
 y-int:  $(0, 0)$   
 axis of symmetry:  $X = -1.5$   
 vertex:  $(-1.5, 9)$   
 x-intercept(s):  $(-3, 0)(0, 0)$

2. Complete the square on the following equations (SHOW WORK)....

$x^2 - 10x = -8$   
 $X - 10X + \left(\frac{-10}{2}\right)^2 = -8 + 25$   
 $(X - 5)^2 = 17$   
 $X - 5 = \pm \sqrt{17}$   
 $X = 5 \pm \sqrt{17}$

$3x^2 - 12x = 0$   
 ~~$3x(x - 4) = 0$~~   
 $X^2 - 4X = 0$   
 $X^2 - 4X + \left(\frac{-4}{2}\right)^2 = 0 + 4$   
 $(X - 2)^2 = 4$   
 $X - 2 = \pm 2$   
 $X = -2 + 2$   
 $X = 2 + 2$   
 $X = 0$   
 $X = 4$

3. Solve the following using any technique you choose:

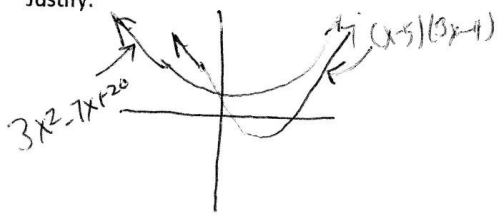
$(x - 6)^2 = 25$   
 $X - 6 = \pm \sqrt{25}$   
 $X = 6 \pm 5$   
 $X = 6 + 5 = 11$   
 $X = 6 - 5 = 1$

$x^2 - 2x - 2 = 6$   
 $X^2 - 2X - 8 = 0$   
 $(X - 4)(X + 2) = 0$   
 $X - 4 = 0$     $X + 2 = 0$   
 $X = 4$     $X = -2$

4. Are (2,0) and (-7,0) the x-intercepts of  $g(x) = x^2 - 5x - 14$ ? Validate your response.

$x = 2$     $x = -7$   
 $x - 2 = 0$     $x + 7 = 0$   
 $(x - 2)(x + 7) = 0$   
 $x^2 - 2x + 7x - 14 = 0$   
 $x^2 + 5x - 14 = 0$   
No  
 Not x-14 since I get 5x you have 5x

5. Carly claims that  $(x - 5)$  and  $(3x - 4)$  are factors of  $3x^2 - 7x + 20$ . Is she correct or incorrect? Justify.



I grouped them & they were not the same

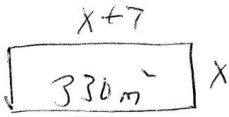
x	f1(x)	f2(x)
1	4	16
2	-6	18

Algebra 2 Exam III Quadratic Unit - Review Name: Key

6. Create a quadratic function in standard form that has x intercepts at (2,0) and (7,0). Explain your reasoning.

$x^2 - 9x + 14$   
 multiplied the two roots and simplified  
 $x=2$      $x=7$   
 $x-2=0$      $x-7=0$   
 $(x-2)(x-7)$   
 $x^2 - 2x - 7x + 14$

7. A rectangle has a length that is 7 meters longer than its width. The area of the rectangle is 330 m<sup>2</sup>. Write and solve an equation to find the length and width of the rectangle.

  
 $x+7$   
 $330 \text{ m}^2$   
 $x$   
 $x=15 \text{ m}$   
 $x+7=22 \text{ m}$   
 $x(x+7)=330$   
 ~~$x^2 + 7x = 330$~~   
 $x^2 + 7x - 330 = 0$   
 $(x-15)(x+22) = 0$   
 $x=15$      $x=-22$

REVIEW PROBLEMS....

8. Solve the system of equations using either substitution or elimination.

$x - 2y = 10$   
 $4x + y = -5$   
 $x = 10 + 2y$   
 $4(10 + 2y) + y = -5$   
 $40 + 8y + y = -5$   
 $9y = -45$   
 $y = -5$   
 $x - 2(-5) = 10$   
 $x + 10 = 10$   
 $x = 0$   
 $(0, -5)$   
 $x - 2y = 10$   
 $8x + 2y = -10$  (\*2)  
 $9x = 0$   
 $x = 0$   
 $4(0) + y = -5$   
 $y = -5$   
 $(0, -5)$

9. Name the parent function and transformations for  $t(x) = -2|x+3| - 5$  and then SKETCH its graph.

