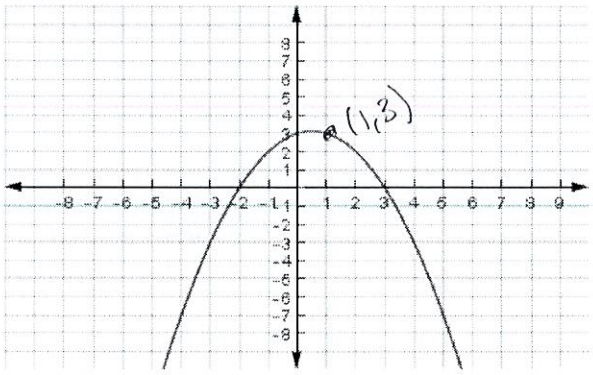
Unit 1B – Quadratics
Writing Quadratic Equations from Roots
Homework

Name: Answer

Date: _____

It is OK if you get fractions or decimals for these! As a matter of fact, you should get fractions in every answer except for number 5...

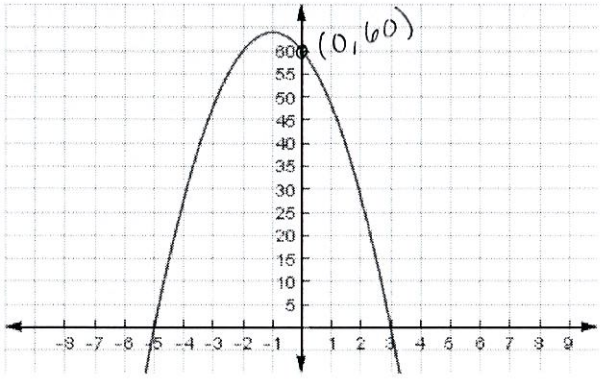
1. Find the equation of a quadratic function that has x-intercepts at (-3, 0) and (5, 0) and passes through the point (4, -3).
2. Find the equation of a quadratic function that has x-intercepts at (-4, 0) and (7, 0) and passes through the point (-3, 12).
3. Write a quadratic equation that has zeros at 3 and -1 and contains the point (1, -2).
4. Determine the equation of the graph.



$x = 3$
$x = -2$

$(x-3)(x+2) = 0$
$x^2 - x - 6 = 0$
$a(x^2 - x - 6) = y$
$a(1^2 - 1 - 6) = 3$
$a(-6) = 3$
$a = -1/2$
$y = -1/2x^2 + 1/2x + 3$

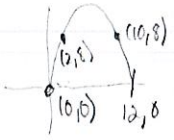
5. Determine the equation of the graph.



$x = 3$
$x = -5$

$(x-3)(x+5) = 0$
$x^2 + 2x - 15 = 0$
$a(x^2 + 2x - 15) = y$
$a(0^2 + 2(0) - 15) = 60$
$a(-15) = 60$
$a = -4$
$y = -4x^2 - 8x + 60$

6. An arch of a highway overpass is in the shape of a parabola. The arch spans a distance of 12 meters from one side of the road to the other. The height of the arch is 8 meters at a horizontal distance of 2 meters from each side of the arch. Use this information to create an equation that represents the shape of the arch.

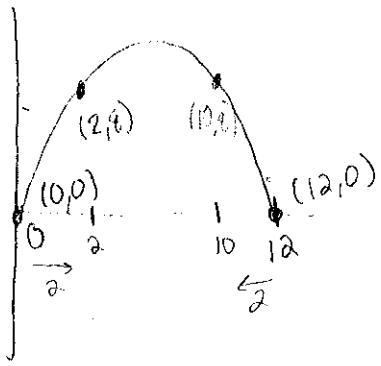


1). $(x+3)(x-5) = 0$
$x^2 + 3x - 5x - 15 = 0$
$x^2 - 2x - 15 = 0$
$y = a(x^2 - 2x - 15)$
$-3 = a(4^2 - 2(4) - 15)$
$-3 = a(-7)$
$a = 3/7$
$y = 3/7x^2 - 6/7x - 45/7$

2). $(x+4)(x-7) = 0$
$x^2 - 3x - 28 = 0$
$y = a(x^2 - 3x - 28)$
$12 = a(-3^2 - 3(-3) - 28)$
$12 = a(-10)$
$-6/5 = a$
$y = -6/5x^2 + 18/5x + 168/5$

3). $x = 3 \quad x = -1$
$(x-3)(x+1) = 0$
$x^2 - 2x - 3 = 0$
$y = a(x^2 - 2x - 3)$
$-2 = a(1^2 - 2(1) - 3)$
$-2 = a(-4)$
$1/2 = a$
$y = 1/2x^2 - x - 3/2$

6).



$x=12 \quad x=0$

$(x-12)(x-0)=0$

$x^2-12x=0$

$y=a(x^2-12x)$

$8=a(2^2-12(2))$

$8=a(4-24)$

$8=a(-20)$

$\frac{8}{-20}=a$

$-2/5=a$

$y=-2/5x^2+24/5x$