Algebra 1 Bellwork Monday, May 11, 2015

ANSWERS

Round decimal answers to the nearest hundredth.

1. Use the Discriminant to determine the number of real solutions to each Quadratic Equation.

a) $y = 4x^2 + 3x + 11$ $b^2-4ac = -167$ NO REAL SOL

b) $y = 7x^2 - 21x - 5$ $b^2-4ac = 581$ 2 Real Sol

c) $y = 18x^2 - 48x + 32$ $b^2-4ac = 0$ 1 Real Sol

2. An object is shot into the air with an initial velocity of 120 ft/sec from an initial height of 25 feet. The following equation models the height as a function of time: $h(t) = -16t^2 + 120t + 25$

a) Will it ever reach a height of 175 feet? If yes, how many times.

$175 = -16t^2+120t+25 \rightarrow 0 = -16t^2+120t-150$ $b^2-4ac = 4800$ Yes, two times

b) Will it ever reach a height of 300 feet? If yes, how many times.

$300 = -16t^2+120t+25 \rightarrow 0 = -16t^2+120t-275$ $b^2-4ac = -3200$ NO

c) Will it ever reach a height of 250 feet? If yes, how many times.

$250 = -16t^2+120t+25 \rightarrow 0 = -16t^2+120t-225$ $b^2-4ac = 0$ Yes, ONE TIME (MAX HT)

d) Will it ever reach a height of 15 feet? If yes, how many times.

$15 = -16t^2+120t+25 \rightarrow 0 = -16t^2+120t+10$ $b^2-4ac = 15{,}040$ Yes, ONE TIME

e) When will it hit the ground?

$0 = -16t^2+120t+25$ $b^2-4ac = 16{,}000$ $t = \frac{-120 \pm \sqrt{16{,}000}}{-32} = -0.20$ & 7.70

7.70 sec

3. Solve this Quadratic Equation by Factoring: $40x^2 + 52x = 12$

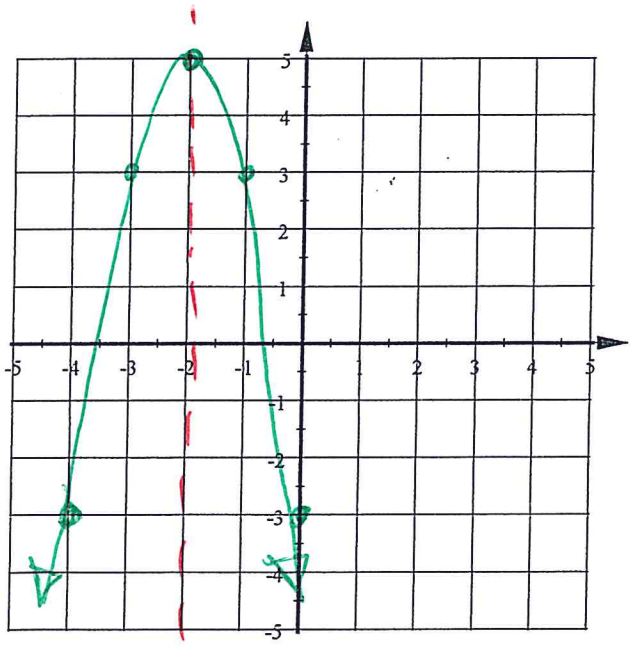
$40x^2+52x-12=0$ $4(10x^2+13x-3)=0$

	$2x$	$+3$
$5x$	$10x^2$	$15x$
-1	$-2x$	-3

$4(2x+3)(5x-1)=$

$x = -3/2, 1/5$

4. Graph this Quadratic Function using at least five points. $y = -2x^2 - 8x - 3$



y-int $= -3$

LOS: $x = \frac{8}{2(-2)} = -2$

Vertex $(-2, 5)$

x	y
-1	3

5. Solve this Quadratic Equation using Square Roots: $5x^2 - 19 = x^2 + 14$

$-x^2 \quad -x^2$

$x = \pm 2.87$

$4x^2-19 = 14$

$+19 \quad +19$

$\frac{4x^2}{4} = \frac{33}{4}$

$\sqrt{x^2} = \sqrt{33/4}$

6. Simplify this square root: $\sqrt{384}$ $64 \cdot 6$ $= 8\sqrt{6}$

7. Find each to the nearest hundredth.

a) $\sqrt{47}$ 6.86

b) $-\sqrt{182}$ -13.49