Bellwork Hon Alg 2 Monday, January 23, 2017

1. Solve. $2|x+3|-13>73$

2. Find ALL solutions by factoring, square roots, completeting the square, or Quadratic Formula. You must use each method at least once.

a. $2x^4+26x^3+60x^2=0$

b. $9x^2+72x=0$

c. $2x^2+103=59$

d. $x^2-4x+13=0$

e. $x^2+6x=3$

f. $3x^3-7x^2+18x-42=0$

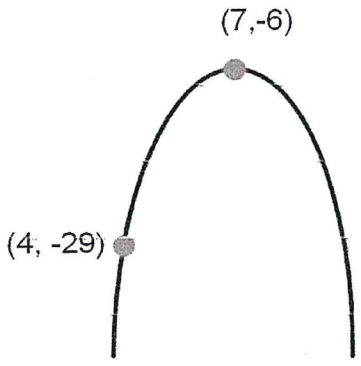
g. $8x^7-72x^3=0$

3. An object is shot into the air from the top of a ~~50~~ 45 foot building. The following equation models the objects height h(t) as a function of the amount of time t (sec) after the launch. $h(t)=-16t^2+184t+45$

a) Find the objects maximum height and the time it takes to reach that height.

b) Find the amount of time it takes the object to come back down to the ground.

c) Find the amount of time it takes the object to reach a height of 75 feet.



4. Write the equation of this parabola.

HON ALG 2 BELLWORK MON 1-23-17

ANSWERS

(1) $2|x+3| - 13 > 73$

$+13 \quad +13$

$\frac{2|x+3|}{2} > \frac{86}{2}$

$|x+3| > 43$

DISTANCE FROM ZERO MORE THAN 43 UNITS

$x+3 < -43$ OR $x+3 > 43$

$x < -46$ OR $x > 40$

(2) a) FACTOR

$2x^4 + 26x^3 + 60x^2 = 0$

$2x^2(x^2 + 13x + 30) = 0$

30 / 10 × 3 / 13

$2x^2(x+3)(x+10) = 0$

$x = 0, -3, -10$

b) FACTOR

$9x^2 + 72x = 0$

$9x(x+8) = 0$

$x = 0, -8$

c) SQUARE ROOTS

$2x^2 + 103 = 59$

$\frac{2x^2}{2} = \frac{-44}{2}$

$x^2 = -22$

$x = \pm i\sqrt{22}$

d) Complete the Square or quad formula

$x^2 - 4x + 13 = 0$

$x^2 - 4x + 4 = -13 + 4$

$\sqrt{(x-2)^2} = \sqrt{-9}$

$x - 2 = \pm 3i$

$x = 2 \pm 3i$

e) Quad Formula or complete the sq

$x^2 + 6x - 3 = 0$

$b^2 - 4a = 48$

$\frac{-6 \pm \sqrt{48}}{2} \rightarrow 16:3$

$= \frac{-6 \pm 4\sqrt{3}}{2} = -3 \pm 2\sqrt{3}$

(2) f) FACTOR

$3x^3 - 7x^2 + 18x - 42 = 0$

	$3x$	-7
x^2	$3x^3$	$-7x^2$
$+6$	$+18x$	-42

$(3x-7)(x^2+6)=0$

$x = 7/3, \pm i\sqrt{6}$

g) factor

$8x^7 - 72x^3 = 0$

$8x^3(x^4-9)=0$

$8x^3(x^2+3)(x^2-3)=0$

$x = 0, \pm i\sqrt{3}, \pm\sqrt{3}$

(3) $h(t) = -16t^2 + 184t + 45$

(t,h)

a) max ht is at Vertex

max ht of 574 ft after 5.75 sec

$t = -b/2a = \frac{-184}{-32} = 5.75$ sec

$h(5.75) = 574$ ft

b) h=0 on the ground → $0 = -16t^2 + 184t + 45$

$b^2 - 4ac = 36{,}736$

$t = \frac{-184 \pm \sqrt{36{,}736}}{-32} = -0.24 \text{ & } 11.74$

11.74 sec

c) ht of 75 → $75 = -16t^2 + 184t + 45$

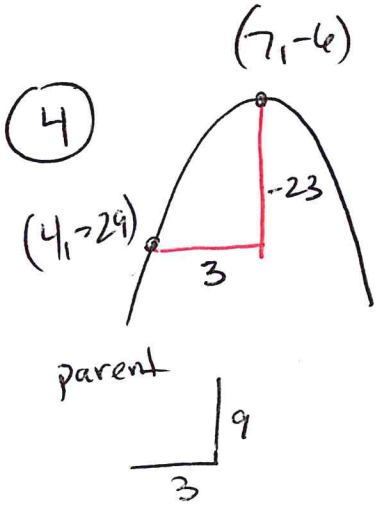
$0 = -16t^2 + 184t - 30$

$b^2 - 4ac = 31{,}936$

$t = \frac{-184 \pm \sqrt{31{,}936}}{-32} = 0.17 \text{ & } 11.33$

0.17 sec & 11.33 sec

(4)



$y = a(x-7)^2 - 6$

$a = \frac{-23}{9}$

$y = \frac{-23}{9}(x-7)^2 -$