Bellwork Alg 2A Monday, June 12, 2017

1. Find all EXACT Complex Solutions, real and imaginary.

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

h. $2(x-3)^2 + 27 = 3$

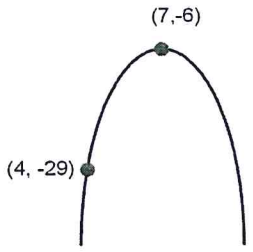
2. An object is shot into the air from the top of a 45 foot building. The following equation models the objects height h(t) as a function of the amount of time t (sec) after the launch. $h(t) = -16t^2 + 184t + 45$

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.

3. Write the equation of this parabola.



EQ:

(1g) FACTOR $8x^7 - 72x^3 = 0$

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

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

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

(1h) SQ. ROOTS $2(x-3)^2 + 27 = 3$

$-27 \quad -27$

$\frac{2(x-3)^2}{2} = \frac{-24}{2}$

$\sqrt{(x-3)^2} = \sqrt{-12}$

$x - 3 = \pm 2i\sqrt{3}$

$+3 \quad +3$

$x = 3 \pm 2i\sqrt{3}$

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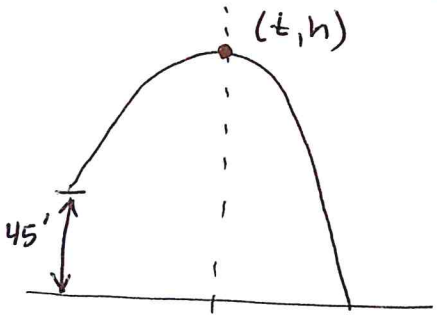
(2) $h(t) = -16t^2 + 184t + 45$

Vertex: (t, h)

$(5.75\text{s}, 574\text{ft})$

LOS $t = 5.75$; $h(5.75) = 574$



LOS $t = x = \frac{-184}{2(-16)} = 5.75$

a) max ht = 574 ft
time to max ht = 5.75 sec

b) $h = 0$

$t = 11.74$ sec

$0 = -16t^2 + 184t + 45$ use quad formula

$b^2 - 4ac = 36736$

$t = \frac{-184 \pm \sqrt{36736}}{-32} = -.24$ or 11.74

c) $h = 75$

$t = 0.17$ and 11.33 sec

$75 = -16t^2 + 184t + 45$

$-75 \qquad -75$

$0 = -16t^2 + 184t - 30$ use quad formula

$b^2 - 4ac = 31936$

$t = \frac{-184 \pm \sqrt{31936}}{-32}$ 0.17 or 11.33

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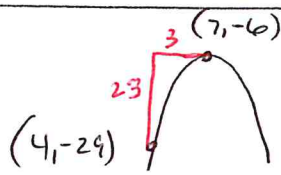
(3)



parent function

$a = -23/9$

$y = -\frac{23}{9}(x-7)^2 - 6$

ALG 2A Bellwork Mon. 6-12-17 Answers

1a FACTOR $2x^4 + 26x^3 + 60x^2 = 0$

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

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

$x = 0, -3, -10$

1b FACTOR $9x^2 + 72x = 0$

$9x(x+8) = 0$

$x = 0, -8$

1c SQ. ROOTS $2x^2 + 103 = 59$

$-103 \quad -103$

$2x^2 = -44$

$x^2 = -22$

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

1d $x^2 - 4x + 13 = 0$ QUAD FORMULA or Completing the sq.

$b^2 - 4ac = -36$

$x = \frac{4 \pm \sqrt{-36}}{2}$

$= \frac{4 \pm 6i}{2}$

$2 \pm 3i$

1e $x^2 + 6x = 3$ QUAD FORMULA or Completing the Sq

$x^2 + 6x + 9 = 3 + 9$

$\sqrt{(x+3)^2} = \sqrt{12}$

$x + 3 = \pm 2\sqrt{3}$

$x = -3 \pm 2\sqrt{3}$

1f FACTOR $3x^3 - 7x^2 + 18x - 42 = 0$

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

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

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