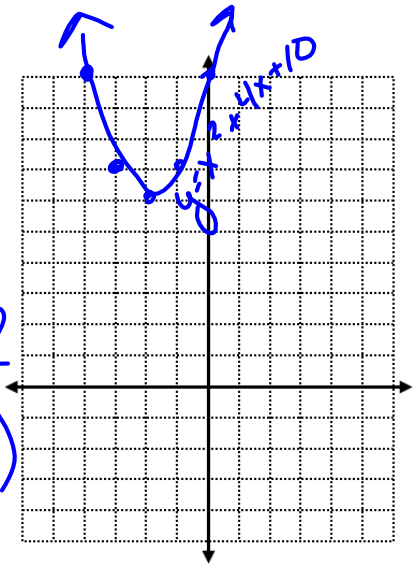
Do Now

Graph the function $y = x^2 + 4x + 10$.

Find the axis of symmetry, vertex and the zeros of the function



x	y
-4	10
-3	7
-2	6
-1	7
0	10

AOS $x = -2$

Vertex $(-2, 6)$

Zero

NO Zeros

$(4) \quad -8 + 10$

$-4 + 10$

6

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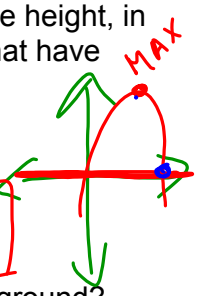
Graphing Real Life Quadratic Word Problems

1. Find algebraically:

The height of a golf ball hit into the air is modeled by the equation $h = -16t^2 + 48t$, where h represents the height, in feet, and t represents the number of seconds that have passed since the ball was hit.



What is the height of the ball after 2 seconds?

$h = -16(2)^2 + 48(2)$

$h = -64 + 96$

$h = 32$ feet

How long does it take the golf ball to reach the ground?

$0 = -16t^2 + 48t$

$0 = -16t(t - 3)$

$-16t = 0 \quad | \quad t - 3 = 0$

$t = 0 \quad | \quad t = 3$

3 sec

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Graphing Real Life Quadratic Word Problems

When working with quadratic word problems:

- Identify what part(s) the question is asking for
- Use the graphing calculator to help you graph and get the table of values needed
  - You may need to change the window or table step values!

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2. The height h in feet of a ball t seconds after being tossed upward is given by the formula $h = 80t - 16t^2$.

AOS $x = \frac{-b}{2a}$

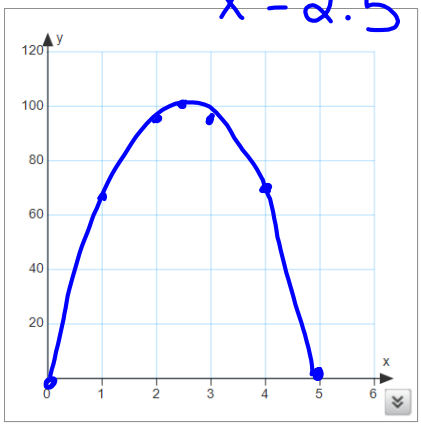
$x = \frac{-(80)}{2(-16)}$

$x = 2.5$

a. Complete the following table of values.

t	0	1	2	3	4	5
h	0	64	96	96	64	0

b. Sketch a graph of the function.



c. After how many seconds will the ball hit the ground?

5 sec

d. What is the maximum height of the ball?

100 feet

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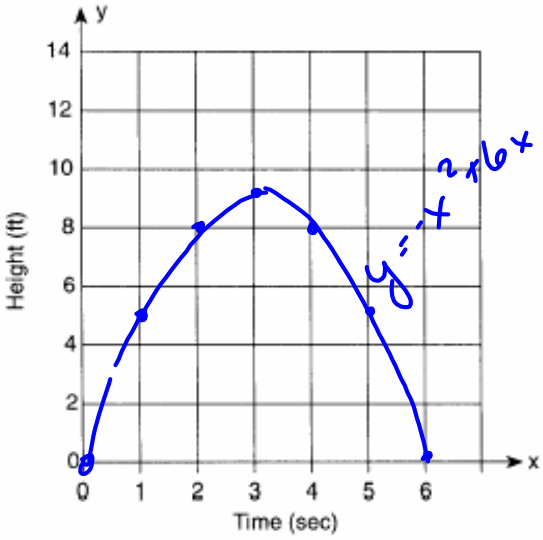
3. Amy tossed a ball in the air in such a way that the path of the ball was modeled by the equation $y = -x^2 + 6x$. In the equation, y represents the height of the ball in feet and x is the time in seconds.

a) Graph $y = -x^2 + 6x$ for $0 \le x \le 6$ on the grid provided below.

b) At what time, x, is the ball at its highest point? 3 sec

X	Y
0	0
1	5
2	8
Vertex 3	9
4	8
5	5
6	0



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