Name: _____ Date: _____ Period: _____

3.1 Solving Quadratics by Projectile Motion CYU FOUR

| CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Creating a table from a function	1 – 7		
Finding the vertex	1 – 7		
Max/Min & Value	1 – 7		
Ground/Zeros	1 – 7		
Predicting specific x values	1 – 7		
Explaining Why with Quadratics		5, 6, 7	
Graphing quadratic	1 – 7		
Changing window to match graph	1 - 7		

I.   Fourth way: Projectile Motion.

1. An athlete can kick a football from the ground with an initial velocity of 48 feet per second. The height from the ground in feet can be found using the function $f(x) = -16x^2 + 48x$, where x is the time in seconds.

    Create a table:

    Create a graph and answer the questions:

    a. What is the maximum height?

    b. When does it reach its max height?

    c. When does it hit the ground?
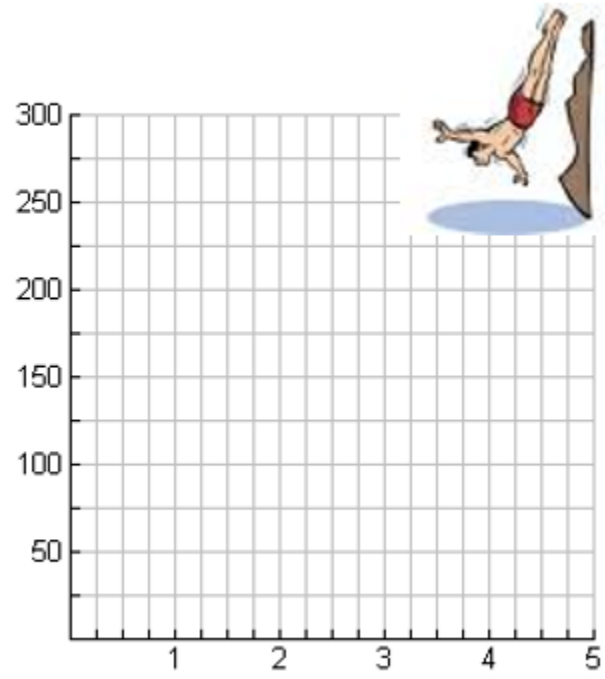
    d. Where is it at 1 second?
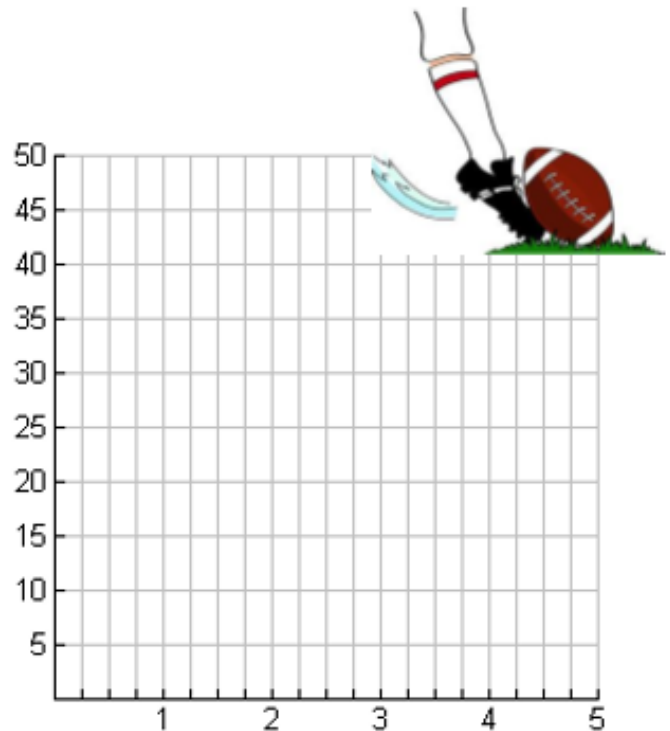
2. A cliff diver, drops into the water from a height of 225 feet. The height from the ground in feet can be found using the function $y = -16x^2 + 225$, where x is the time in seconds.

Create a table:

Create a graph and answer the questions:

    a. What is his maximum height?

    b. When does he reach his max height?

    c. When does he hit the ground?
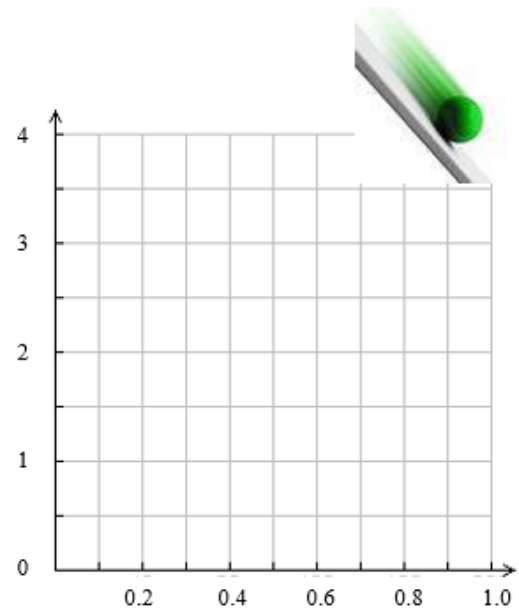
    d. Where is he at 1 second?

3. A ball rolls off a roof 4 meters high. The height from the roof can be found using the function $f(x) = -4.9x^2 + 4$, where x is the time in seconds.

Create a table:

Create a graph and answer the questions:
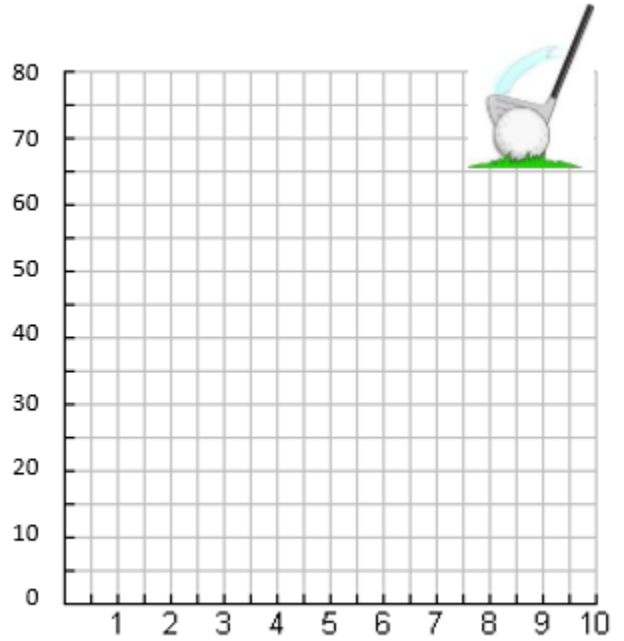
    a. What is the maximum height?

    b. When does it reach its max height?

    c. When does it hit the ground?

    d. Where is it at 1 second?

4. A golf ball is hit from the ground with an initial velocity of 39.2 meters per second. The height from the ground in meters can be found using the function $f(x) = -4.9x^2 + 39.2x$, where x is the time in seconds.
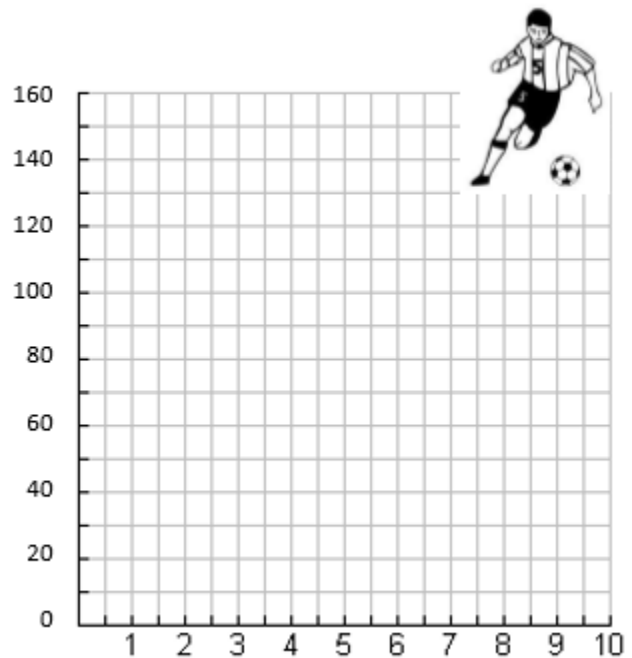Create a table:

Create a graph and answer the questions:

a. What is the maximum height?

b. When does it reach its max height?

c. When does it hit the ground?

d. What is the height at 2 seconds?

5. A soccer ball is kicked from the ground with an initial velocity of 49 meters per second. The height from the ground in meters can be found using the equation $y = -4.9x^2 + 49x$, where x is the time in seconds.
Create a table:

a. What is the maximum height?

b. When does it reach its max height?

c. When does it hit the ground?

d. What is the height at 3 seconds and 7 seconds? Why is it the same?

6. A flare is launched from a life raft with an initial velocity of 144 feet per second. The height from the ground in feet, h, can be found using the function $h(t) = -16t^2 + 144t + 0$, where t is the time in seconds.
Create a table:

Create a graph and answer the questions:

a. What is the maximum height?

b. When does it reach its max height?

c. When does it hit the ground?
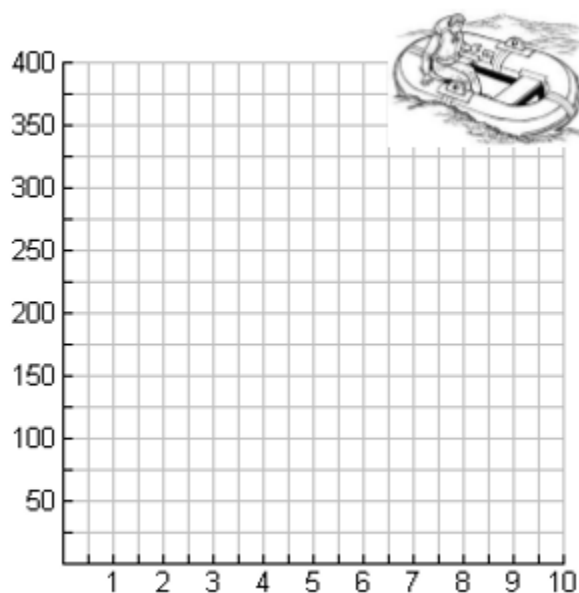
7. A model rocket will be launched into the ocean from a hill 80 feet above sea level. Its initial velocity is 64 feet per second. The rocket's distance s, above sea level at any time, t, is found by the equation $s = -16t^2 + 64t + 80$.
Create a table:

a. What is the maximum height?

b. When does it reach its max height?

c. When does it hit the ground?

d. What is its height at 1 and 3 seconds? Why is it the same?
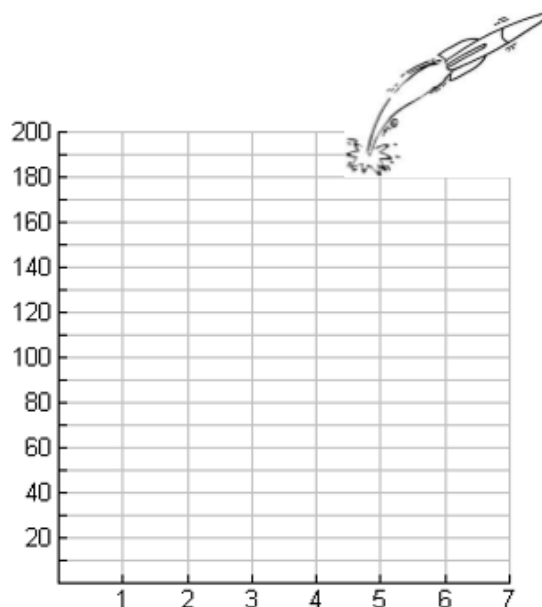
CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!
How confident are you with the skills this CYU covered? Circle the score you would give yourself.

1 2	3 4 5	6 7	8
Basic	Intermediate	Advanced	Solved ALL!