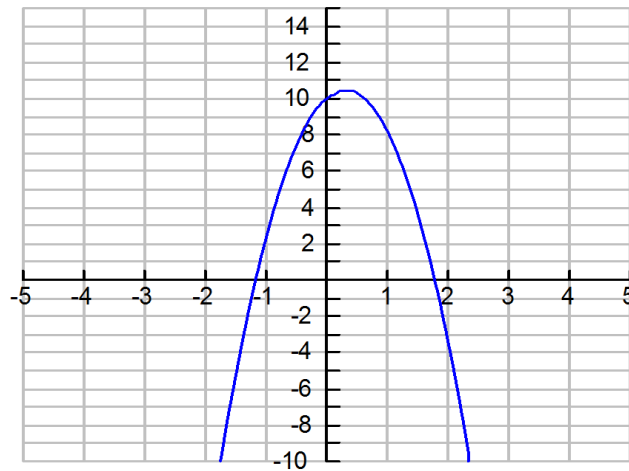


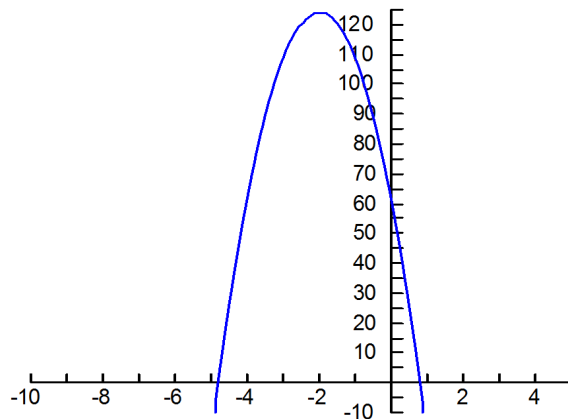
Competitors in the 10 meter platform diving competition jump upward and outward before diving into the pool below. The height y of a diver in meters above the pool after x seconds can be approximated by the equation:
 $y = -4.9x^2 + 3x + 10$.



Questions related to the problem:

An amusement park ride takes riders to the top of a tower and drops them at speeds reaching 80 per second.

A function that models this ride is $y = -16x^2 - 64x + 60$, where y is the height in feet and x is the time in seconds.



Questions related to the problem:

As an object is propelled upwards, gravity pulls it back to earth. This relationship

is expressed by $s = v_1t - \frac{1}{2}gt^2$, where:

s is distance above starting point

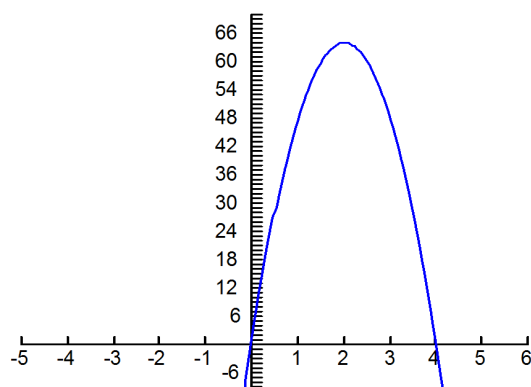
v_1t is initial velocity

g is acceleration of gravity (32ft per second)

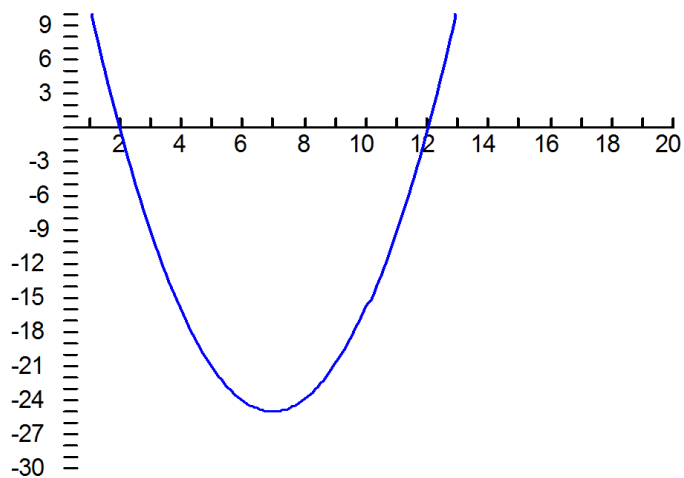
t is time

A tennis ball is shot vertically upward from a launcher with an initial velocity of 64 feet per second.

Questions?:



The length and width of a 6-inch by 8-inch photograph are reduced by the same amount to make a new photograph whose area is half that of the original. By how many inches will the dimensions of the photograph have to be reduced?



Homework Problems due Monday Feb 3

1. To avoid hitting any rocks below, a cliff diver jumps up and out. The equation $h = -16t^2 + 4t + 26$ describes her height in feet t seconds after jumping. Find the time at which she returns to a height of 26 feet.
2. The Hillcrest Garden Club wants to double the area of its **rectangular** rose bed. Strips of the same width will be added to one end and one side to form a rectangle. If the bed is now 17.5m by 12.2m, what are the dimensions of the new bed?
(Draw diagram)
3. A projectile on Earth is fired straight up from the ground so that its distance in feet above the ground t seconds after firing is given by:
 $h = -16t^2 + 400t$
 - a) Find the maximum height the projectile reaches.
 - b) How long does it take to reach the maximum height?
4. The average NFL salary $A(t)$, in thousands of dollars, from 1975 to 2000 can be estimated using the function $A(t) = 2.3t^2 - 12.4t + 73.7$, where t is the number of years since 1975.
 - a. Determine a domain and range for which this function makes sense.
 - b. According to this model, in what year did the average salary first exceed one million dollars?