



Examples 2.2 – Analyzing Quadratic Functions

1. Let $T(t) = -0.8t^2 + 2t + 79$ be the air temperature in degrees Fahrenheit between 6 A.M. and 8 P.M., where t is hours after noon (see Examples 1.1).

(a) Find the time at which the high temperature occurred. Find the high temperature.

Solution:

(b) Find the temperature at 4:00 P.M. and determine how quickly it was changing at that time.

Solution:

2. Let $s(t) = -6t^2 + 66t - 108$ be the position of an object in rectilinear motion, where s is in meters and t is in seconds. Assume that the positive direction is to the right.

(a) Find the initial position (y-intercept), and determine the time(s) at which the object is at the origin (t -intercepts).

Solution:

(b) Find the velocity function and use it to find the initial velocity, the time(s) at which the object is at rest, and the time intervals on which the object is moving to the left and right.

Solution:



(c) Find the acceleration function.

Solution: