Homework H.1.G

Given: Particle P travels within the x-y plane along a path given by $y(x) = x^2/2 - 10x$, where x and y are given in feet. The x-component of the position for P is changing at a constant rate of $\dot{x}$.

Find: For this problem:

(a) Make a sketch of the path of particle P.

(b) Determine the velocity and acceleration of P.

(c) Show the velocity and acceleration vectors of P in your sketch of P's path.

(d) Determine the rate of change of speed of P.

Use the following parameters in your analysis: $\dot{x} = 5$ ft/s and $x = 10$ ft.