

Homework H1.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: $\dot{x} = 5 \text{ ft/s}$ and $x = 10 \text{ ft}$.