

Homework H.1.G

Given: A particle P travels in the x - y plane with a path whose coordinates are given as a function of time t as: $x(t) = 16 - 12t$ and $y(t) = 2 + 15t - 3t^2$, where x and y are in meters, and t is in seconds.

Find: For this problem:

- (a) Determine the velocity and acceleration of P in terms of their x - y components.
- (b) Make a sketch of the velocity and acceleration vectors for P.
- (c) Determine the rate of change of speed of P and the radius of curvature for the path of P.

Use the following parameters in your analysis: $t = 10$ s.