

Quiz 10.2A

Name _____

1. The position vector $s(t)$ of a particle moving in the plane is given.

$$s(t) = \langle 3t^2 + 1, \ln(2t + 3) \rangle \quad (1, 1)$$

- a) Find the velocity vector of the particle at time $t = 1$.
- b) Find the speed of the particle at time $t = 1$.
- c) Find the acceleration vector of the particle at time $t = 1$.

2. The velocity function $v(t)$ of a particle moving in the plane is given, along with the position of the particle at time $t = 0$, which is $(3, 4)$.

$$v(t) = \left\langle \frac{1}{t+1}, \frac{1}{t^2+1} \right\rangle$$

- a) Find the position vector of the particle at time $t = 3$.
- b) Find the distance the particle travels from $t = 0$ and $t = 4$.