

Free Response Practice 2 (no calculator)

The horizontal position, in centimeters, of a particle is given by the function $s(t) = \sin 3t$, where t is in seconds.

- a) Find the velocity function, $v(t)$, and use it to find the velocity at time $t = \frac{\pi}{9}$.
- b) In the interval 0 to 2π seconds, when is the particle at rest?
- c) Is the particle moving left, right, or stationary at time $t = \frac{2\pi}{3}$?
- d) Find the acceleration function, $a(t)$. What is the particle's acceleration at time $t = \frac{\pi}{2}$?

a)
b)
c)
d)