

Handout: Identifying Position, Velocity, Acceleration (Stewart Section 2.2)

You have learned about higher derivatives, in particular the second derivative, $f''(x)$. And you have learned that in physics, the following notation is often used to describe the motion of an object moving in one dimension:

t is a variable representing **time**.

$s(t)$ is the **position** of the object at time t .

$v(t) = s'(t)$ is the **velocity** of the object at time t .

$a(t) = v'(t) = s''(t)$ is the **acceleration** of the object at time t .

In the picture below, the horizontal axis is time t . The three graphs are of the position function $s(t)$, the velocity function $v(t)$, and the acceleration function $a(t)$ for a car. Identify each curve, and explain your choices.

