

## POSITION / VELOCITY / ACCELERATION

\* Suppose an object moves along a straight line according to an equation of motion  $s = h(t)$  where  $s$  is the displacement (directed distance) of the object from the origin at time  $t$ .

The function  $h$  is called the position function of the object.

\* the velocity of the object at time  $t$ , denoted by  $v(t)$ , is the instantaneous rate of change of  $h$  with respect to  $t$ .

i.e.,  $v(t) = h'(t)$

\* The speed of the object at time  $t$  is the absolute value of the velocity

\* the acceleration of the object at time  $t$ , denoted by  $a(t)$ , is the instantaneous rate of change of the velocity with respect to  $t$ .

i.e.,  $a(t) = v'(t)$