

Position

• velocity

acceleration

$$s(t)$$

$$v(t) = s'(t)$$

$$a(t) = v'(t) = s''(t)$$

• velocity

If $v(t) > 0$, particle moving right
(position increasing)

If $v(t) < 0$, particle moving left
(position decreasing)

• Speed

If acceleration and velocity have the same sign on an interval, particle is speeding up

If acceleration and velocity have opposite signs on an interval, particle is slowing down