

### Question #14446

The formula for speed (when moving with constant acceleration) is  $v(t) = v(0) + at$  .

a) Plugging here  $v(t) = 24 \text{ m/s}$ ,  $t = 2 \text{ s}$ ,  $v(0) = 0 \text{ m/s}$  , obtain  $a = 12 \frac{\text{m}}{\text{s}^2}$  .

b) The distance traveled by cheetah is then  $S = \frac{at^2}{2} = \frac{12 \frac{\text{m}}{\text{s}^2} \cdot 4 \text{ s}^2}{2} = 24 \text{ m}$  .