

Kinematics Question # 22

$V_i = 0$ $a = ?$ Sp Up 2. $V_f = ?$

$d = 500.0 \text{ m}$

$t = 20.0 \text{ s}$

(A) $V_{\text{ave}} = \frac{d}{t} = \frac{500}{20} = 25 \frac{\text{m}}{\text{s}}$

$V_{\text{ave}} = \frac{V_i + V_f}{2}$ $d = V_i t + \frac{1}{2} a t^2$

$25 = \frac{0 + V_f}{2}$ $a = \frac{d}{\frac{1}{2} t^2} = \frac{500 \text{ m}}{\frac{1}{2} (20 \text{ s})^2} = 2.5 \frac{\text{m}}{\text{s}^2}$

$V_f = 0 + (+2.5)(20)$

$V_f = 50 \text{ m/s}$

Mar 11-10:31 AM