

Name:

key

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1- A 4.0-kg block initially at rest is pulled to the right along a horizontal, frictionless surface by a constant horizontal force of 15 N. Find the speed of the block after it has moved 4.0 m.

$$W = \vec{F} \cdot \vec{d} = \Delta K$$

$$(15)(4) \text{ J} = \frac{1}{2} m (v_f^2 - v_i^2)$$

$$60 = \frac{1}{2} (4) v_f^2$$

$$v_f = \sqrt{30} \approx 5.5 \text{ m/s}$$

2- As a particle (of mass 1 kg) moves from point A to point B only two forces act on it: one force does -30 J work, while the other force does $+50 \text{ J}$ work. **Calculate** the final kinetic energy of the particle at point B, if it starts from rest at point A.

$$W_{\text{net}} = \Delta K$$

$$50 - 30 = K_f - K_i$$

$$20 = K_f$$

$$K_f = 20 \text{ J}$$