

## Chapter 6 Problem 30 <sup>†</sup>

### Given

$$m = 60 \text{ kg}$$

$$v_0 = 5.0 \text{ m/s}$$

$$v_f = 10.0 \text{ m/s}$$

### Solution

Find the work done on the skateboarder.

Work done is equal to the change in kinetic energy; therefore,

$$W_{net} = \Delta K = \frac{1}{2}mv_f^2 - \frac{1}{2}mv_0^2 = \frac{1}{2}m(v_f^2 - v_0^2)$$

$$W_{net} = \frac{1}{2}(60 \text{ kg})((10.0 \text{ m/s})^2 - (5.0 \text{ m/s})^2) = 2250 \text{ J}$$

$$W_{net} = 2.25 \text{ kJ}$$

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<sup>†</sup>Problem from Essential University Physics, Wolfson