DATE: NAME: CLASS:

TOPIC 3.1 | **More Energy Equation Calculation Problems** | **BLM 3.1-11**

Study the sample problem on pages 213 and 214 to understand how to use the two energy equations you learned in Topic 3.1. Then solve the extra practice problems below.

1. A 63.2 kg mountain climber, carrying a 16.4 kg backpack, hikes up to a base camp in preparation for a climb the next day. If she climbs a vertical distance of 1.75 km, how much gravitational potential energy has she gained?

63.2
16.4
79.6

$E_g = mg\Delta h$

$= (79.6\ kg)(9.8\ \frac{m}{s^2})(1750\ m)$ (1.75 km)

$E_g = 1.4 \times 10^6 \left[\frac{kg\ m^2}{s^2}\right] \rightarrow J$

2. A baseball pitcher throws a 142.5 g baseball with a speed of 39.2 m/s. What is the mechanical kinetic energy of the ball when it leaves his hand?

$E_k = \frac{1}{2} mv^2$

$= (\frac{1}{2})(0.1425\ kg)(39.2\ \frac{m}{s})(39.2\ \frac{m}{s})$

$= 1.09 \times 10^2 \left[\frac{kg\ m^2}{s^2}\right] \rightarrow J$