Potential Energy Practice Problems

A man with a mass of 80 kg is standing on the edge of a table 1.5 m above the ground. What is the man's potential energy?

A high jumper clears a vertical distance of 2.45 m, and at the top of his trajectory his potential energy was 1.59×10^3 J. What is the jumper's mass.

A city is situated 4080 m above sea level. If a car with a mass of 905 kg is driven from a location that is 1860 m above sea level to the city, what is the increase in potential energy?

A 2.0 kg rock is nudged off the edge of a 20 m ledge. At some point during the fall the rock has lost 250 J of energy. At what height during the fall does this occur?

The normal daily food intake for an adult male is about 1.3×10^7 J. Assuming 65% efficiency in its utilization, roughly how high a mountain could a 80 kg man climb?

A single barrel of oil contains the equivalent chemical PE of about 6×10^9 J. If you wanted to lift the greatest load possible from sea level to the top of Mt Everest (8,848 m), and assuming 70% efficiency in the conversion of the oil to energy, how large a load would you lift?

A spring with a force constant of 5.2 N/m has a relaxed length of 2.45 m. When a mass is attached to the end of the spring and allowed to come to a rest, the vertical length of the spring is 3.57 m. Calculate the elastic potential energy stored in the spring.