**Name:**

**Date:**

**School:**

**Facilitator:**

7.01 KE and PE Calculations

**Complete the following 6 energy problems. When you work the problems, you should:**

* **Identify the known and unknown values**
* **Write the formula**
* **Show all work**
* **Include the unit of measurement with your answer**

**Use the following formulas:**

* **KE = ½ mv2**
* **PE = mgh**

1. A bicycle and rider with a combined mass of 115 kg are traveling at a speed of 8 m/s. What is the kinetic energy of the bicycle and rider?
   1. Identify known and unknown values:

* 1. Formula:
  2. Solve:

1. What is the kinetic energy of a 0.1 kg toy car moving at a speed of 1.1 m/s?
   1. Identify known and unknown values:

* 1. Formula:
  2. Solve:

1. A book on a shelf 2.5 m above the floor has a mass of 1.7 kg. What is the gravitational potential energy of the book?
   1. Identify known and unknown values:

* 1. Formula:
  2. Solve:

1. What is the mass of a ball on a roof 30 m high, if the ball’s gravitational potential energy is 58.8 J?
   1. Identify known and unknown values:

* 1. Formula:
  2. Solve:

1. Which runner has greater kinetic energy: a 45 kg runner moving at a speed of 7 m per second or a 93 kg runner moving at a speed of 3 m/s?
   1. Identify known and unknown values:

* 1. Formula:
  2. Solve:

1. If a 6 kg box is moved from the floor to a storage compartment 2 m above the floor, by how many joules does its gravitational potential energy change?
   1. Identify known and unknown values:

* 1. Formula:
  2. Solve: