Worksheet: Determining Kinetic Energy Period_____ Date_____

(Frameworks Code)

Recall that the formula for calculating kinetic energy is: $KE=1/2mv^2$. Manipulate this formula to answer the following problems. Be sure to show the four step set-up.

1. A cheetah can run at a speed of 31 m/s. If a cheetah with a mass of 47 kg runs at this speed, what would its kinetic energy be?

2. A 725 kg automobile has a kinetic energy of 302,000 J as it travels along the highway. What is the car's velocity?

3. A baseball is pitched with a speed of 35 m/s. If the baseball has a mass of 0.146 kg, what is its kinetic energy?

4. A bullet train can reach speed of 76.4 m/s. What is the mass of a train that reaches this speed if its total kinetic energy is 2,780,000,000?

5. A polar bear with a mass of 500 kg has 60,500 J of kinetic energy. How fast is it moving?

6. A pigeon flies with a velocity of 5.1 m/s. If it has 46.8 J of kinetic energy, what is its mass?

7. The kinetic energy of a golf ball is measured to be 143.3 J. If the golf ball has a mass of about 0.047 kg, what is its speed?

8. A ping-pong ball has a mass of about 2.45 g. Suppose the ball is hit across the table with a speed of 4.0 m/s. What is its kinetic energy?