

Phys. Science Chapter 15 P.E. and K.E. Problems

(Do not write on this sheet)

Show the set up in the equation for each problem

Kinetic Energy (KE) is energy of motion, or: $KE = \frac{1}{2} mv^2$ $V = \sqrt{2(KE)/m}$ $m = \frac{2(KE)}{v^2}$
m = mass v = speed

Potential Energy (PE) is stored by position or shape, or: $PE = mgh$ $m = \frac{PE}{gh}$ $h = \frac{PE}{mg}$
m = mass h = height gravity (g) = 9.8 m/s

Both KE and PE are in joules

Problems:

1. A 35 kg girl is walking at a speed of 1.5 m/s. What is her KE??.
2. A 410 kg Harley is riding at 15 m/s. What is its KE?
3. A 3.2 kg cat is running at 7.3 m/s. What is its KE?
4. A 0.15 kg bat is flying at 8.5 m/s. What is its KE?
5. A 2150 kg SUV has a KE of 241875 joules. How fast is it going?
6. A running 72 kg man has a KE of 1521 joules. How fast is he running?
7. A dog is running at 4.5 m/s. It has 157 joules of KE. What is its mass?
8. A 1.3 kg basketball is sitting on a 1.8 m shelf. What is its PE??
9. A 154 kg rock is perched at the edge of a 35 m cliff. What is its PE?
10. A 2420 kg airplane is at an altitude of 450 m. What is its PE?
11. A cheerleader is lifted a cheerleader 2.3 m and has a PE of 1149.5 joules. What is her mass?
12. A jack in a garage lifts a 1750 kg car to where it has a PE of 36015 joules. How high was it lifted?
13. A tractor is on the edge of a cliff 21 m high. It has a PE of 504,210 joules. What is its mass?
14. A man lifts a lawnmower into a truck 1.1 m high. It has a mass of 34.5 kg. What is its PE?
15. A box in Home Depot is sitting on a 4.3 m high shelf. It has PE of 1770 joules. What is the mass of the box?