What is Kinetic Energy?

Worksheet

Kinetic energy is KE = mv, measured in joules (J), where m is mass in kg and v is velocity in m/s. Because velocity is squared, doubling speed quadruples the kinetic energy.

KE = @frac{1}{2}mv^{2}

Questions

1. A 4 kg object moves at 5 m/s. What is its kinetic energy?

A) 25 J
B) 50 J
C) 100 J
D) 20 J

2. If an object's velocity doubles, its kinetic energy

A) doubles
B) quadruples
C) stays the same
D) halves

3. What is the SI unit of kinetic energy?

A) Newton
B) Joule
C) Watt
D) Pascal

4. A ball at rest (v = 0) has what kinetic energy?

A) Maximum
B) Zero
C) Negative
D) Infinite

5. A 2 kg object moves at 3 m/s. Find its kinetic energy.

6. A 1000 kg car travels at 20 m/s. Find its kinetic energy.

7. A 1 kg ball moves at 10 m/s. Find its kinetic energy.

8. Define: What is kinetic energy?

9. Define: What is the formula for kinetic energy?

10. Define: What is the unit of kinetic energy?

Answer Key

1. B) 50 J - KE = 45 = 425 = 50 J.
2. B) quadruples - KE depends on v, so doubling v multiplies KE by 4.
3. B) Joule - Energy, including kinetic energy, is measured in joules.
4. B) Zero - With v = 0, KE = m(0) = 0.
5. KE = mv = 23 KE = 29 = 9 J
6. KE = mv = 100020 KE = 1000400 = 200 000 J = 200 kJ
7. KE = mv = 110 KE = 1100 = 50 J
8. The energy a body has due to its motion: KE = mv, measured in joules.
9. KE = mv, where m is mass (kg) and v is velocity (m/s).
10. The joule (J), the SI unit of energy.