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**Course: PHYS 233 01 - PRINCIPLES OF PHYSICS I**

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**Conceptual Questions 7**

- 1. Describe a situation in which a force is exerted for a long time but does no work. Explain.**

**Ans:** Displacement in the expression of the force is the displacement of the object in the direction of the force. If the displacement is zero, then the work done by the force will be zero as well. For example, if you continue to push on a wall without breaking through the wall, you continue to exert a force with no displacement, so no work is done because the wall did not move.

- 2. Two marbles of masses  $m$  and  $2m$  are dropped from a height  $h$ . Compare their kinetic energies when they reach the ground.**

**Ans:** The second marble has twice the kinetic energy of the first because it is heavier and kinetic energy is directly proportional to mass, like the work done by gravity.