C Team Energy Problem Set

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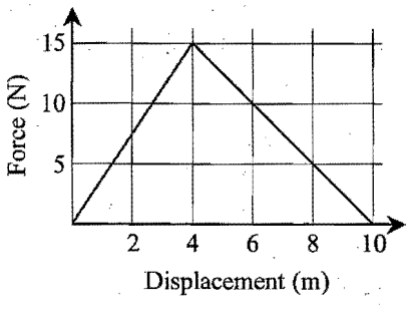
1. A force F of strength 20 N acts on an object of mass 3 kg as it moves a distance of 4 m. If F is perpendicular to the 4 m displacement, what is the work the object does?

2. Under the influence of a force, an object of mass 4 kg accelerates from 3 m/s to 6 m/s in 8 s. How much work was done on the object during this time?



3. The force-displacement graph above depicts the force applied to a 2.0 kg mass as it is displaced 10 meters. The initial speed of the mass is 5.0 m/s. Find the final speed of the mass.

4. A rock of mass 5.0 kg is on a 10 m tall ledge. If the rock is pushed off the ledge, what is the kinetic energy of the rock when it reaches the halfway point of its descent?

5. A block of mass 3.5 kg slides down a frictionless inclined plane of length 6.4 m that makes an angle of 30 degree with the horizontal. If the block is released from rest at the top of the incline, what is its speed at the bottom?