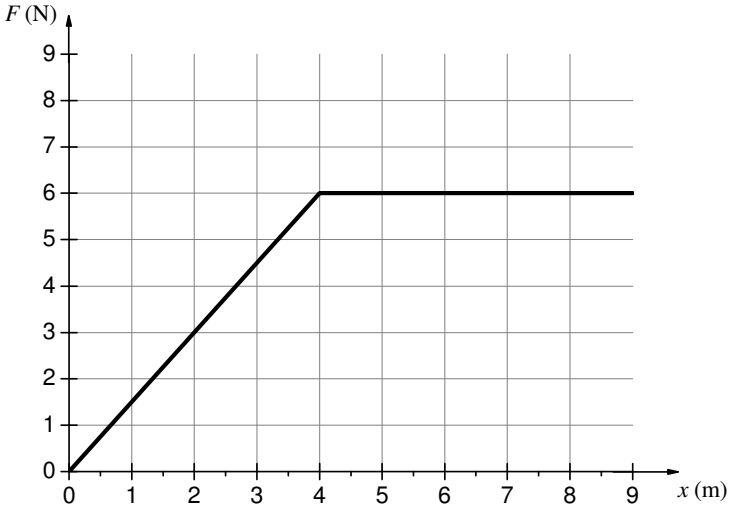
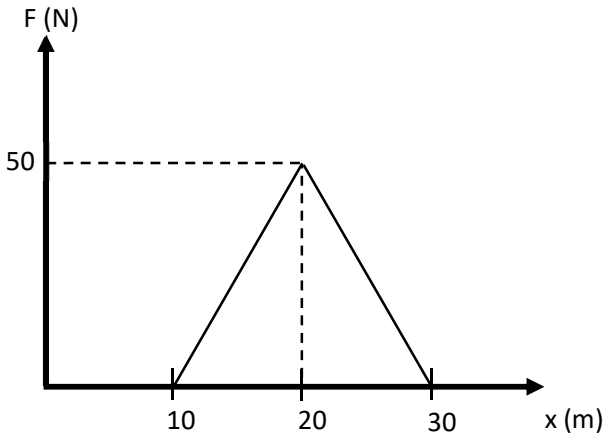
Physics-145 Summer 2019

Homework No. 2

Q1) A graph of the force applied on an object is shown in the figure. Determine the amount of work done by this force on the object that moves from $x = 0$ to $x = 8$ m.

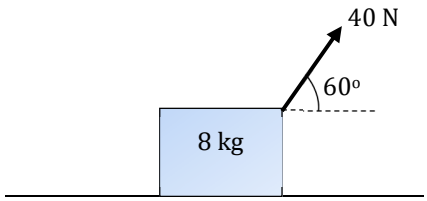


Q2) A 10-kg object at rest is subjected to a force **F**. The variation of the force **F** as a function of position x is shown in the figure below. Calculate the velocity of the object after the time interval the force is applied.

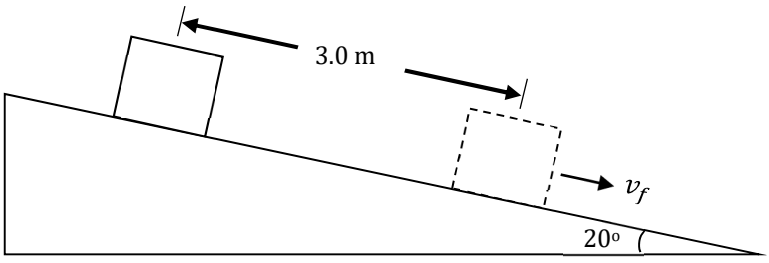


Q3) In the figure below, if the height $h = 2$ m, and both children slided from rest, calcuate their speed at the bottom of the slides.

Q4) An 8 kg block is dragged over a horizontal frictionless surface by a constant force of 40 N acting at an angle of 60° above the horizontal as shown. What will be the speed of the block after a displacement of 5 m?



Q5) A 3.0 kg block starts from rest on a rough inclined plane that makes an angle of 20° with the horizontal as shown in the figure. As the block moves 3.0 m down the incline, its speed is 2.0 m/s. Find the value of the coefficient of kinetic friction between the block and the incline.



Q6) Calculate the power it takes to lift a 50 N load for 5 meters in 10 seconds