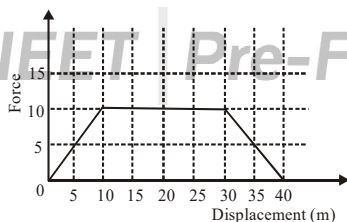
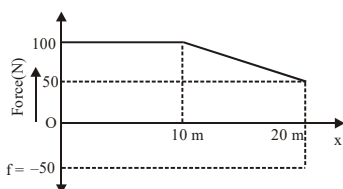


Practice Problems # 2

- A force $F = (15 + 0.50x)$ N acts on a particle in x-direction. The work done by this force during displacement from $x = 0$ to $x = 2.0$ m is
(A) 3 J (B) 15 J (C) 31 J (D) 40 J
- The relation between the displacement x and the time t for a body of mass 2kg moving under the action of a force is given by $x = t^3/3$. The work done by the body in first 2 seconds is
(A) 10 J (B) 16 J (C) 24 J (D) 5 J
- A force acting on a particle varies with the displacement x as $F = ax - bx^2$, where $a = 1$ N/m and $b = 1$ N/m². The work done by this force for the first one metre (F is in newtons, x is in metres) is
(A) $1/6$ J (B) $2/6$ J (C) $3/6$ J (D) None of these
- A particle move along x-axis from $x = 0$ to $x = 5$ m under the influence of a force given by $F = 7 - 2x + 3x^2$. The work done in the process is
(A) 100 J (B) 125 J (C) 135 J (D) 145 J
- A particle of mass 0.5 kg travels in a straight line with velocity $v = ax^{3/2}$ where $a = 5$ m^{-1/2}s⁻¹. The work done by the net force during its displacement from $x = 0$ to $x = 2$ m is
(A) 40 J (B) 50 J (C) 60 J (D) 80 J
- A force $F = a + bx$ acts on a particle in the x-direction, where a and b are constants. Find the work done by this force during a displacement x from $x = 0$ to $x = d$.
(A) $(a + bd)d$ (B) $\left(a + \frac{bd}{2}\right)d$ (C) $\left(a + \frac{bd^2}{2}\right)d$ (D) None of these
- A force $\vec{F} = k(y\hat{i} + x\hat{j})$ where k is a positive constant acts on a particle moving in x-y plane. Starting from the point (3,5) the particle is taken along a straight line to (5,7). The work done by the force is
(A) zero (B) 35 k (C) 20 k (D) 13 k
- Adjacent figure shows the force-displacement graph of a moving body, the work done by this force in displacing the body from $x = 0$ to $x = 35$ m is equal to



- (A) 50 J (B) 25 J (C) 287.5 J (D) 200 J
- Adjacent figure shows the force-displacement graph of a moving woman pushing a truck on a platform and the opposing frictional force (f) vs displacement. The work done by the woman is



- (A) 100 J (B) 1750 J (C) 750 J (D) 2000 J