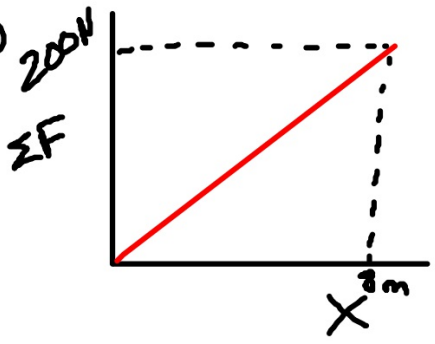
34. $W_{net} = ?$ $m = 10\ kg$



$$\Sigma F = 25x$$

$$W_{net} = \int_0^8 25x \cdot dx$$

$$= \left(\frac{25x^2}{2} \right)_0^8 = \frac{25(8)^2}{2} - \frac{25(0)^2}{2}$$

$$W_{net} = 800\ J$$

38. $m = 1.5\,kg \quad v_0 = 0 \quad \Sigma F = (2.5 - x^2 N)\hat{i}$

$K(2.0m) = ?$ $\qquad W_{net} = \Delta K$

$$\int_0^2 (2.5 - x^2)\,dx = K_2 - K_0$$

$$\left(2.5x - \frac{x^3}{3}\right)_0^2 = K_2 - 0$$

$$(2.5)(2) - \frac{2^3}{3} = K_2$$

$$5 - 2.67 = K_2$$

$K_2 = 2.33\,J$

b) $K_{max} = ?$ (between 0 + 2m)

$x = ?$ $\quad \Sigma F = 0$

$$2.5 - x^2 = 0$$

$$2.5 = x^2 \qquad x = 1.581$$

$$W_{net} = \Delta K$$

$$\int_0^{1.581} (2.5 - x^2)\,dx = K_{1.581} - K_0$$

$$\left(2.5x - \frac{x^3}{3}\right)_0^{1.581} = K_{1.581}$$

$= 2.64\ \text{J}$