



a) En la más alta (a 25 mts.):

$$E_p = m \cdot g \cdot h = (3 \text{ kg}) (9.8 \text{ m/s}^2) \cdot (25 \text{ m})$$

$$E_p = 735 \text{ J} \quad E_c = \frac{1}{2} m v^2 = 0$$

En la más alta $v = 0 \Rightarrow E_c = 0 \Rightarrow E_T = E_c + E_p = 735 \text{ J}$

b) A 15 mts. del suelo:

$$E_p = m \cdot g \cdot h = (3 \text{ kg}) \cdot (9.8 \text{ m/s}^2) (15 \text{ m}) = 441 \text{ J}$$

$$E_T = E_c + E_p + Q = 735 \text{ J}$$

$$W_{FR} = F_R \cdot d = (-2 \text{ N}) \cdot (10 \text{ m}) = -20 \text{ J} = -Q$$

$$E_c = E_T - E_p - Q = 735 \text{ J} - 441 \text{ J} - 20 \text{ J}$$

$$E_c = 274 \text{ J}$$

c) En el momento que llega al suelo:

$$E_p = m \cdot g \cdot h = m \cdot g \cdot 0 = 0 \text{ J}$$

$$E_c = \frac{1}{2} m v^2 \quad ; \quad E_T = E_p + E_c + Q$$

$$W_{FR} = F_R \cdot d = (-2 \text{ N}) \cdot (25 \text{ m}) = -50 \text{ J} = -Q$$

$$E_c = E_T - E_p - Q = 735 \text{ J} - 0 \text{ J} - 50 \text{ J}$$

$$E_c = 685 \text{ J}$$