

8. (a) Let f be the frictional force.

By Newton's second law,

$$10 - f = 3 \times 2$$

$$f = 4 \text{ N}$$

$$a = 2 \text{ ms}^{-2}$$



- (b) (i) Apply $v = u + at$

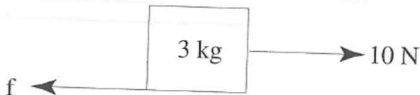
$$v = 0 + 2 \times 4$$

$$v = 8 \text{ m s}^{-1}$$

$$\text{Kinetic energy} = \frac{1}{2} mv^2$$

$$= \frac{1}{2} (3) (8)^2$$

$$= 96 \text{ J}$$



- (ii) Let d be the distance travelled before the block comes to rest.
K.E. = workdone against friction

$$96 = f \times d$$

$$= 4 d$$

$$d = 24 \text{ m}$$