

Question

Given:

$$F_{\text{applied}} = 300 \text{ N}$$

$$d = 750 \text{ m}$$

$$F_{\text{friction}} = 200 \text{ N}$$

Need to find:

$$W - ?$$

Solution:

The friction force and applied force are in opposite direction. So, the net force:

$$F_{\text{net}} = F_{\text{applied}} - F_{\text{friction}} = 300 \text{ N} - 200 \text{ N} = 100 \text{ N} .$$

Therefore, the work done:

$$W = F_{\text{net}} \cdot d = 100 \text{ N} \cdot 750 \text{ m} = 75000 \text{ J} .$$

Answer: 75000 Joules.