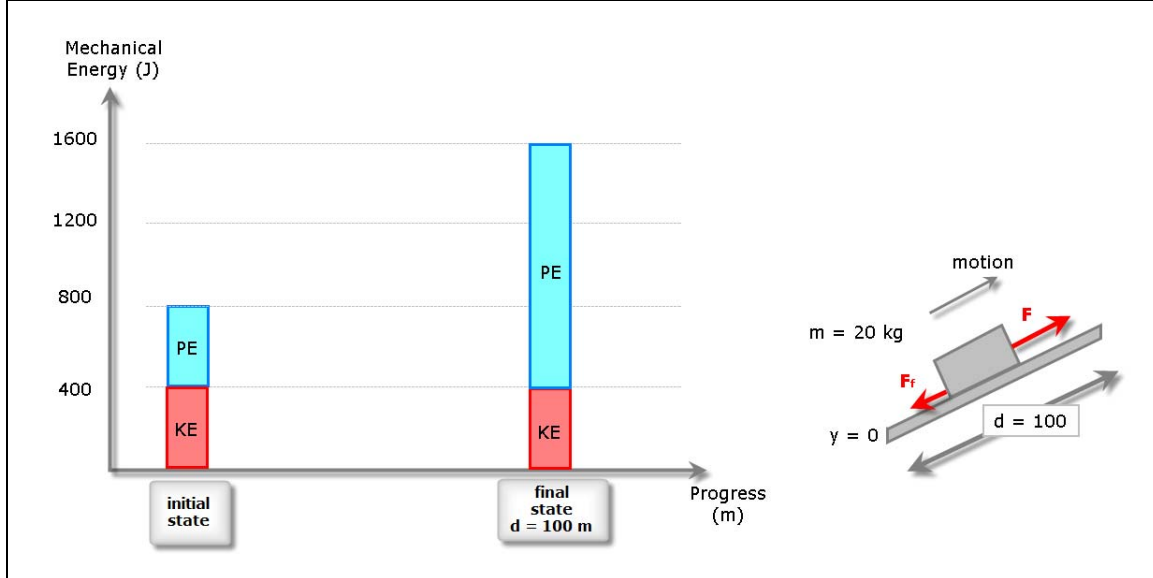


**Conceptual Test:
CONSERVATION OF MECHANICAL ENERGY**

The motion of a body is represented here as a mechanical energy vs. progress graph.

Try to understand the process described in that graphic and answer the following questions (below)



1 The change in kinetic energy between final and initial states is:

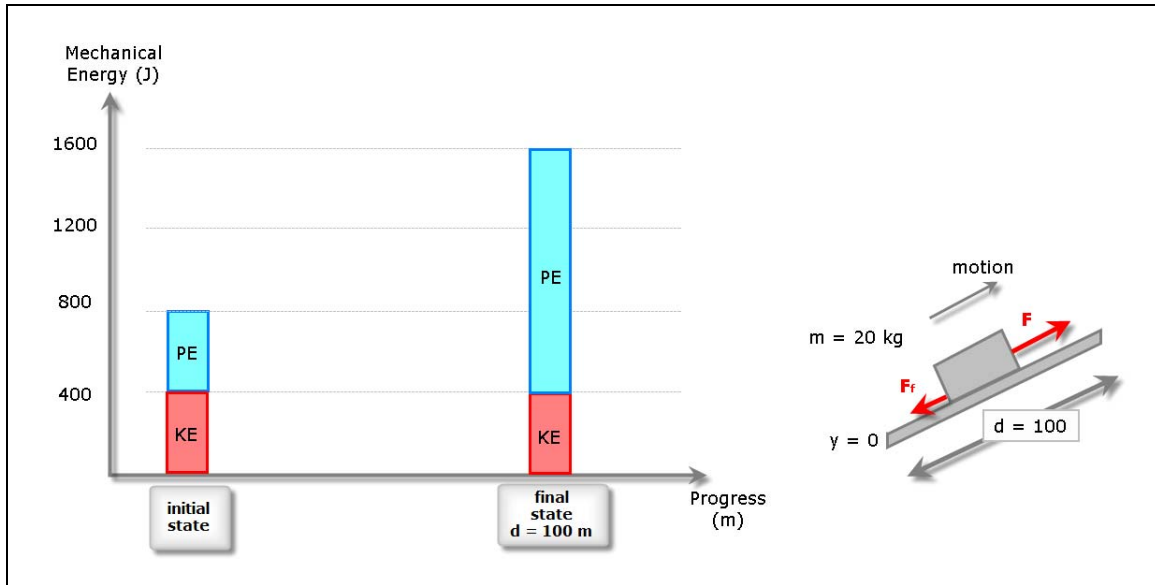
- $\Delta KE = 0$
- $\Delta KE > 0$
- $\Delta KE < 0$

2 The change in potential gravitational energy is

- $\Delta PE = 0$
- $\Delta PE > 0$
- $\Delta PE < 0$

3 The increase in mechanical energy is

- $\Delta E = 0$
- $\Delta E > 0$
- $\Delta E < 0$



4 The total work done is:

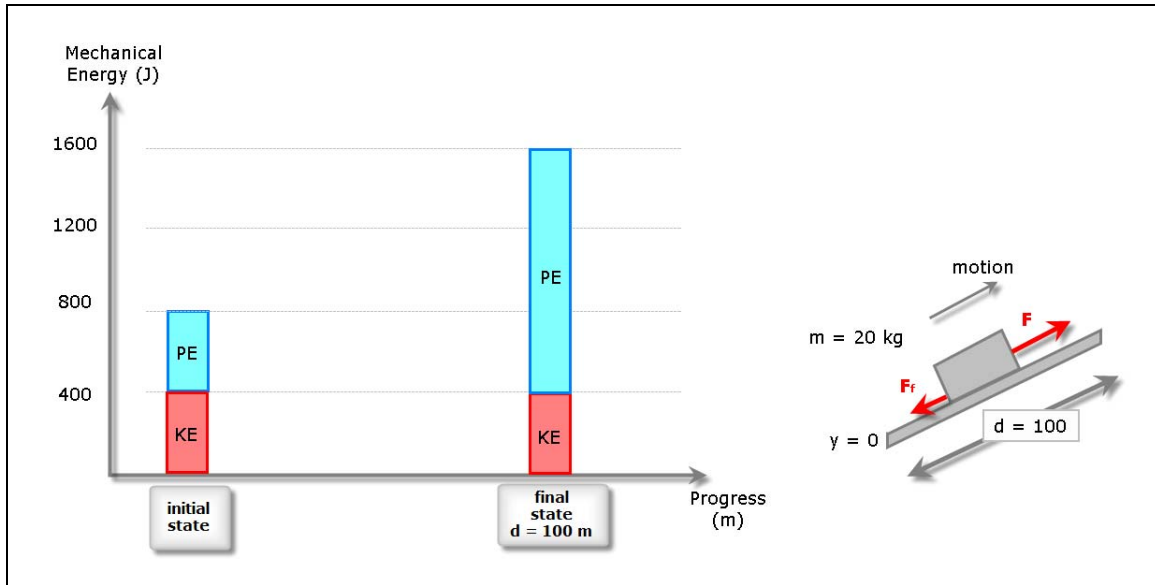
- $W_{\text{TOTAL}} = 0$
- $W_{\text{TOTAL}} > 0$
- $W_{\text{TOTAL}} < 0$

5 The work $W_{F, Ff}$ done (by non-conservative forces) is:

- $W_{F, Ff} = 0$
- $W_{F, Ff} > 0$
- $W_{F, Ff} < 0$

6 The net force is:

- $F_{\text{net}} = 0$
- $F_{\text{net}} > 0$
- $F_{\text{net}} < 0$



7 The initial height is:

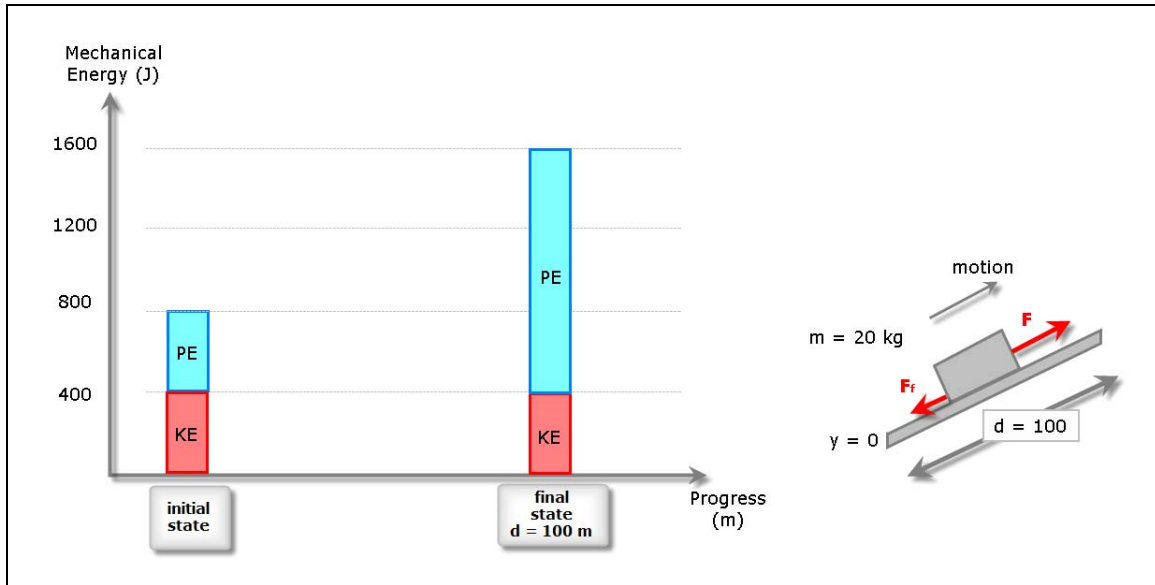
- $h = 4 \text{ m}$
- $h = 2 \text{ m}$
- $h = 0$
- $h = \text{unknown}$

8 The final height is:

- $h = 6 \text{ m}$
- $h = 8 \text{ m}$
- $h = 0$
- $h = \text{unknown}$

9 The initial velocity is

- $v_0 = \sqrt{80} \text{ m/s}$
- $v_0 = 20 \text{ m/s}$
- $v_0 = \sqrt{40} \text{ m/s}$



10 | The final velocity is

- $v = \sqrt{80}$ m/s
- $v = 20$ m/s
- $v = \sqrt{40}$ m/s