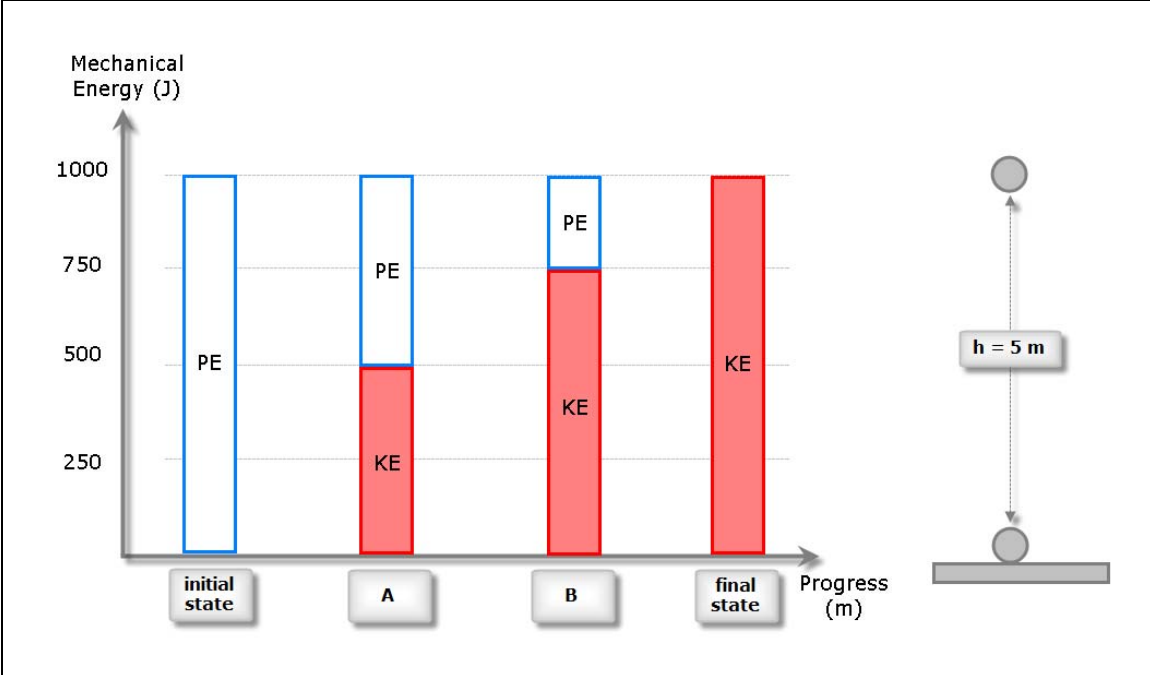


Conceptual Test:
CONSERVATION OF MECHANICAL ENERGY

The motion of a ball 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)

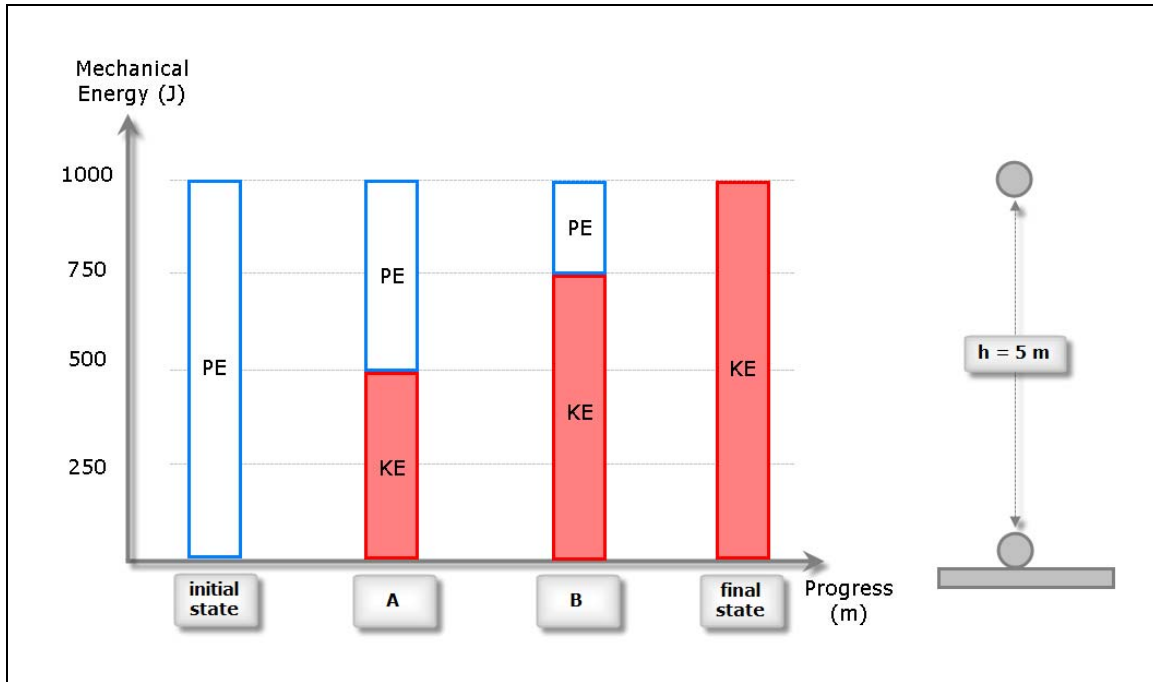


1 Direction of motion:

- the ball goes **upwards**
- the ball goes **downwards**

2 The total work done (by all forces together) is:

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



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

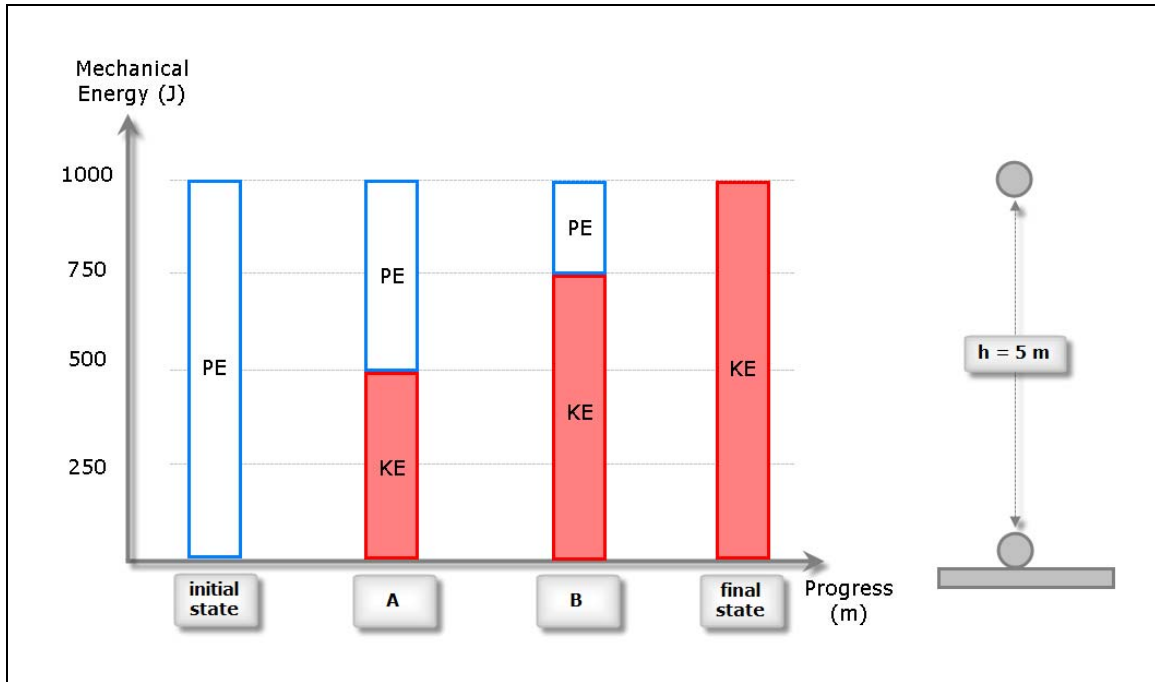
- $W_{F, Ff} = 0$
- $W_{F, Ff} > 0$
- $W_{F, Ff} < 0$

4 The increase in potential energy is

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

5 The increase in kinetic energy is

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



6 The increase in mechanical energy is

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

7 The positions of points "A" and "B" are:

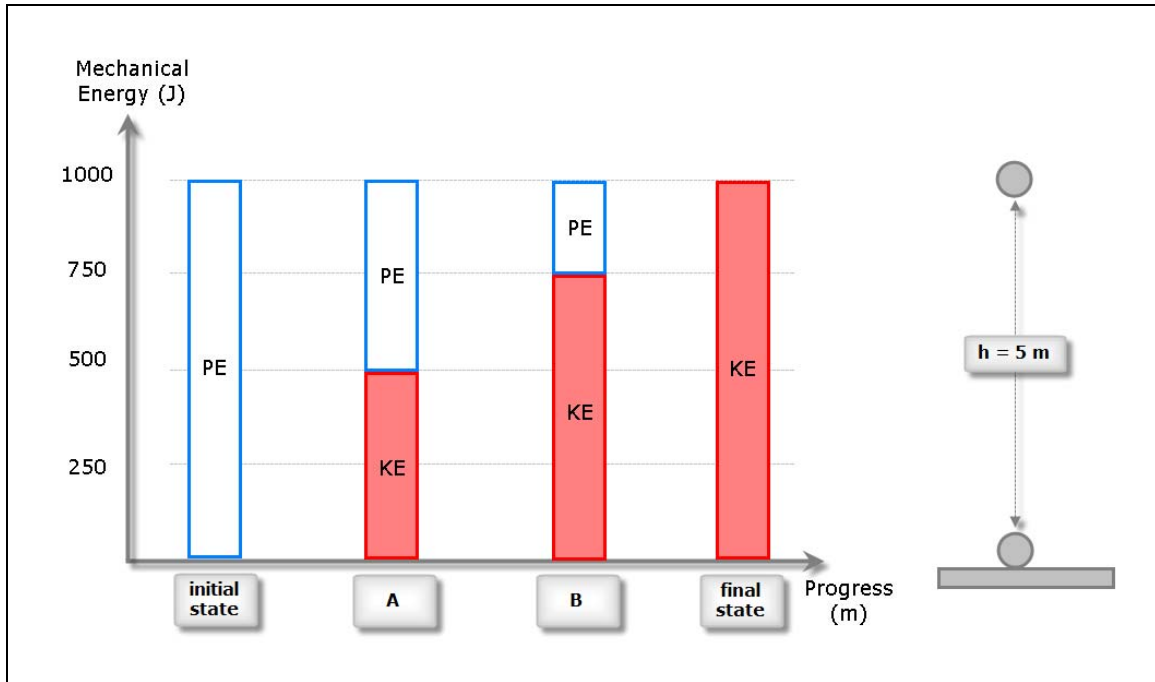
- A = 1
- A = 2
- A = 3

- B = 1
- B = 2
- B = 3

The diagram shows a ball being thrown upwards from a height of $h = 5\text{ m}$. The path is marked with points 1, 2, and 3, where 1 is at the ground, 2 is at $h = 5\text{ m}$, and 3 is at the peak.

8 The mass of the ball is

- $m = 10\text{ kg}$
- $m = 20\text{ kg}$
- $m = \text{unknown}$



9 The initial velocity is

- $v = 10\text{ m/s}$
- $v = \text{unknown}$
- $v = 0$

10 The final velocity is

- $v = 10\text{ m/s}$
- $v = 5\text{ m/s}$
- $v = 0$
- $v = \text{another value}$