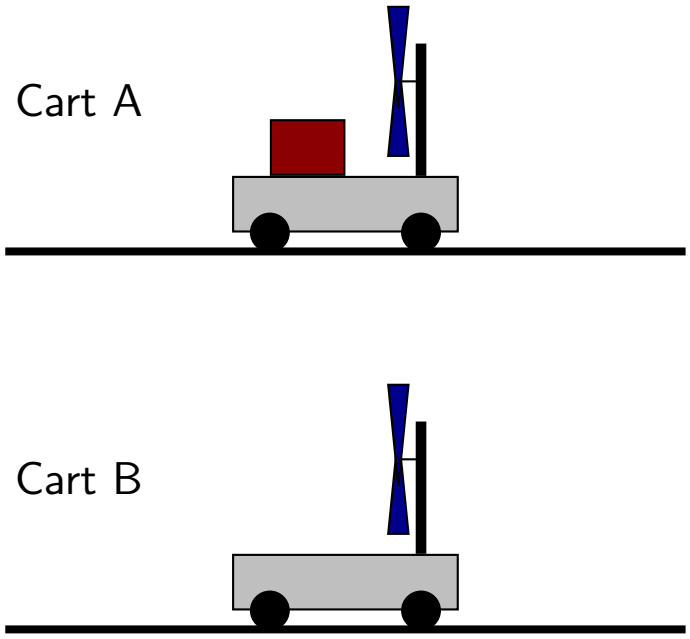
Question 1

Two fan carts run on tracks. The mass of cart A is twice that of cart B. The fans produce identical constant forces on the carts.



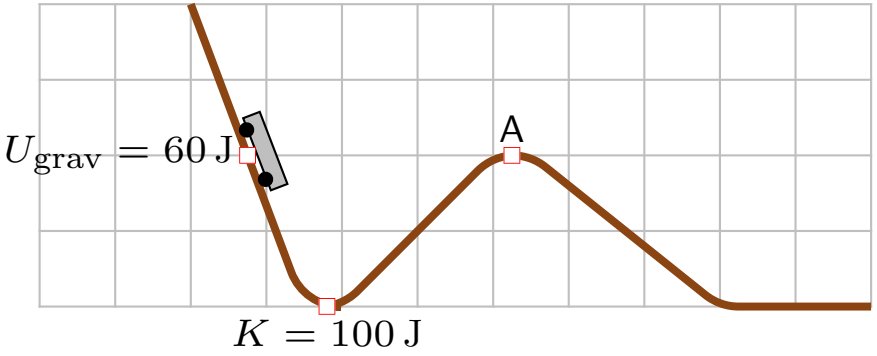
Each cart starts at rest. After each has traveled $0.5\,\mathrm{m}$, which of the following is true regarding the average power produced by the fans?

1. $P_\mathrm{A} = P_\mathrm{B}$
2. $P_\mathrm{A} < P_\mathrm{B}$
3. $P_\mathrm{A} > P_\mathrm{B}$

Note: for such constant forces the power varies over time.

Question 2

A cart slides along a track as illustrated. The reference $y = 0$ is taken at the lowest point on the track. Various energies are shown at the indicated points.

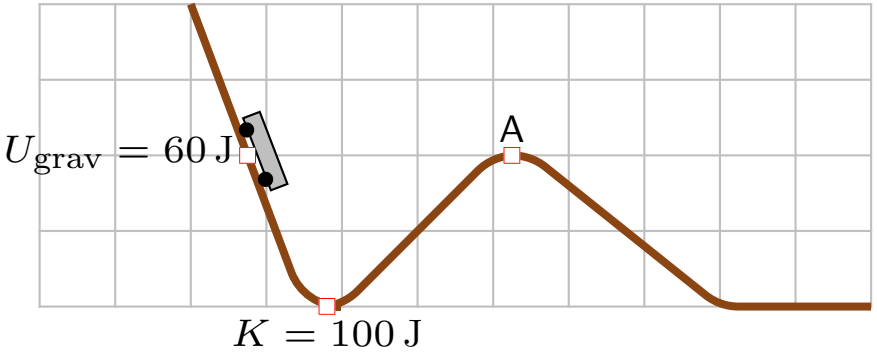


What is the total energy of the cart?

1. $E = 160\,\text{J}$
2. $E = 100\,\text{J}$
3. $E = 60\,\text{J}$
4. $E = 40\,\text{J}$

Question 3

A cart slides along a track as illustrated. The reference $y = 0$ is taken at the lowest point on the track. Various energies are shown at the indicated points.



Which of the following is true at point A?

1. $U_{\text{grav}} = 100\,\text{J}$ $K = 0\,\text{J}$
2. $U_{\text{grav}} = 100\,\text{J}$ $K = 60\,\text{J}$
3. $U_{\text{grav}} = 60\,\text{J}$ $K = 0\,\text{J}$
4. $U_{\text{grav}} = 60\,\text{J}$ $K = 40\,\text{J}$
5. $U_{\text{grav}} = 40\,\text{J}$ $K = 60\,\text{J}$