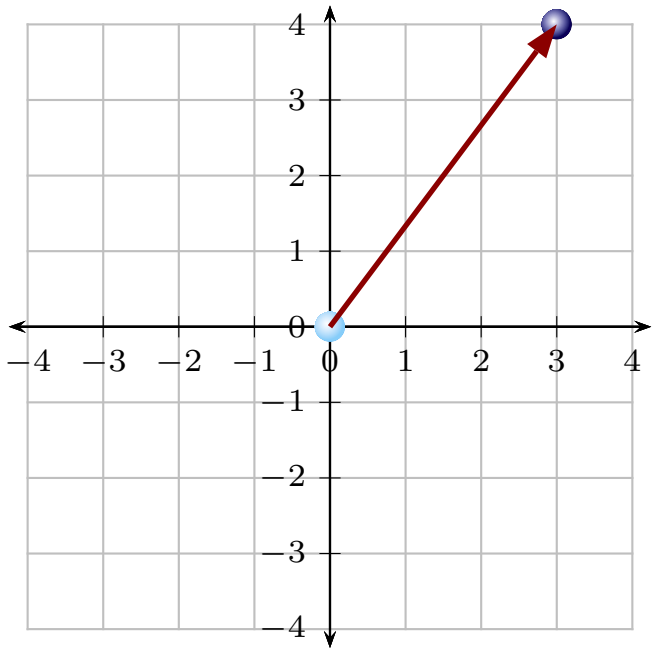
Question 1

A ball moves along the illustrated straight path. A hand exerts a constant force of $8.0\,\mathrm{N}$ to the *right*. Grid units are meters.

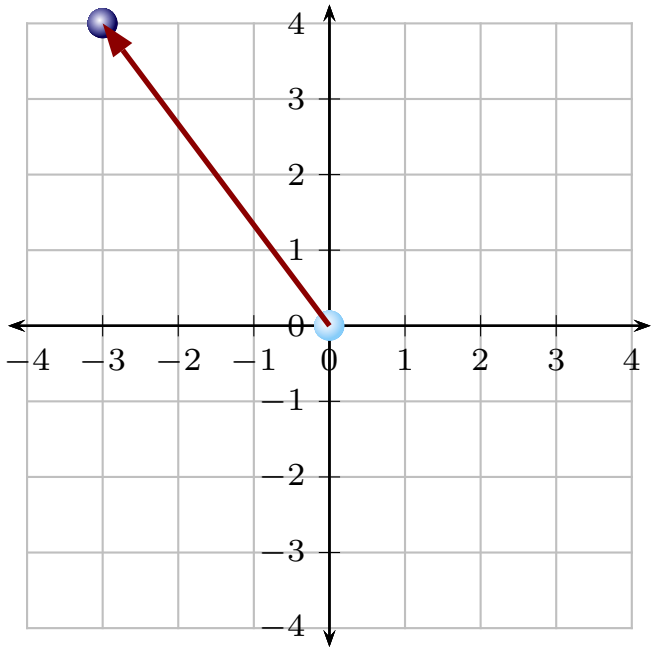


Which of the following is the work done by the hand?

1. $W_{\text{hand}} = 24\,\mathrm{J}$
2. $W_{\text{hand}} = -24\,\mathrm{J}$
3. $W_{\text{hand}} = 32\,\mathrm{J}$
4. $W_{\text{hand}} = -32\,\mathrm{J}$
5. $W_{\text{hand}} = 40\,\mathrm{J}$
6. $W_{\text{hand}} = -40\,\mathrm{J}$

Question 2

A ball moves along the illustrated straight path. A hand exerts a constant force of $8.0\,\mathrm{N}$ to the *right.* Grid units are meters.



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Question 3

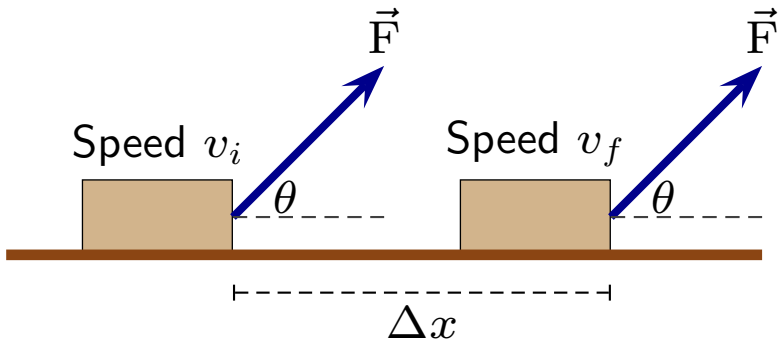
A telephone is suspended from a rope. A person controls the rope so that the telephone is lowered at a constant speed.

Which of the following is true?

1. The rope does positive work, gravity does positive work.
2. The rope does positive work, gravity does negative work.
3. The rope does negative work, gravity does positive work.
4. The rope does negative work, gravity does negative work.

Question 4

A box is pulled along a horizontal frictionless surface by a constant force.

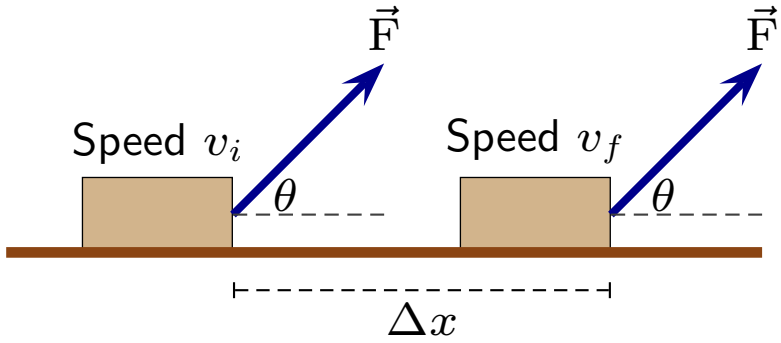


Let W be the work done by the illustrated force between the illustrated initial and final instants. Which of the following is true?

1. $\frac{1}{2}mv_f^2 = W.$
2. $\frac{1}{2}mv_i^2 = W.$
3. $\frac{1}{2}mv_f^2 + \frac{1}{2}mv_i^2 = W.$
4. $\frac{1}{2}mv_f^2 - \frac{1}{2}mv_i^2 = W.$

Question 5

A box with mass m is pulled along a horizontal frictionless surface by a constant force.



Let W_{grav} be the work done by the gravitational force and W_{n} be the work done by the normal force.

Which of the following is true?

1. $W_{\text{grav}} = W_{\text{n}} = 0.$
2. $W_{\text{grav}} = -mg \qquad W_{\text{n}} = mg.$
3. $W_{\text{grav}} = mg \qquad W_{\text{n}} = mg.$
4. $W_{\text{grav}} = -mg\Delta x \qquad W_{\text{n}} = mg\Delta x.$
5. $W_{\text{grav}} = mg\Delta x \qquad W_{\text{n}} = mg\Delta x.$