Question 1

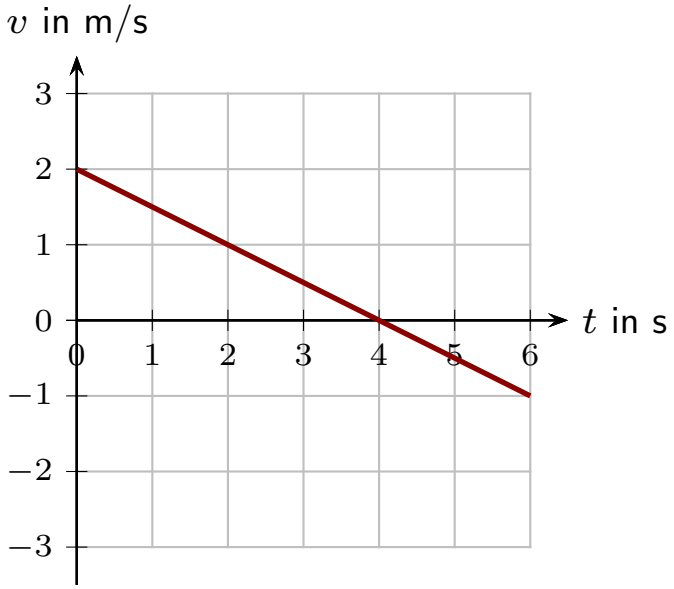
A cart slides to the left with constantly increasing *speed*.

Which of the following is true?

1. The average acceleration is positive.
2. The average acceleration is negative.
3. The average acceleration is negative if the cart is right of the origin but positive if it is left of the origin.
4. The average acceleration is negative if the cart is left of the origin but positive if it is right of the origin.
5. The average acceleration is zero.

Question 2

A graph of velocity vs. time for an object moving in one dimension is illustrated.

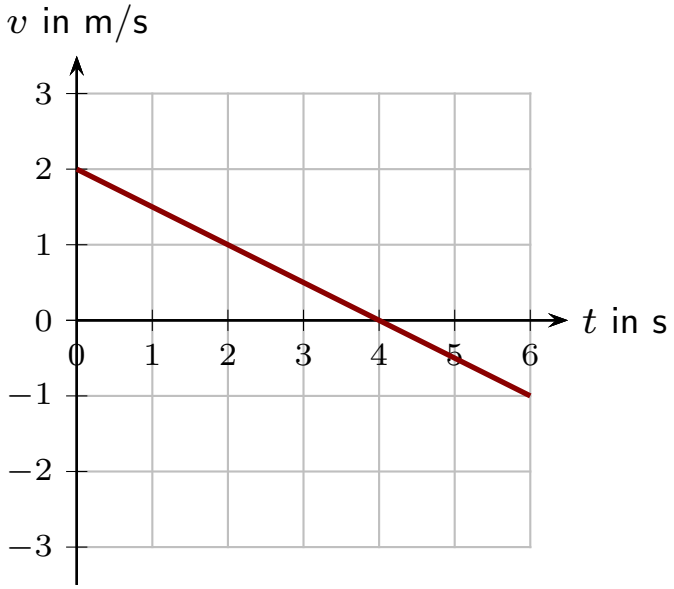


Which of the following is true about the object's motion during the period from $0\,\mathrm{s}$ to $6\,\mathrm{s}$?

1. It is always speeding up.
2. It is always slowing down.
3. At some times it is speeding up; at others it is slowing down.

Question 3

A graph of velocity vs. time for an object moving in one dimension is illustrated.

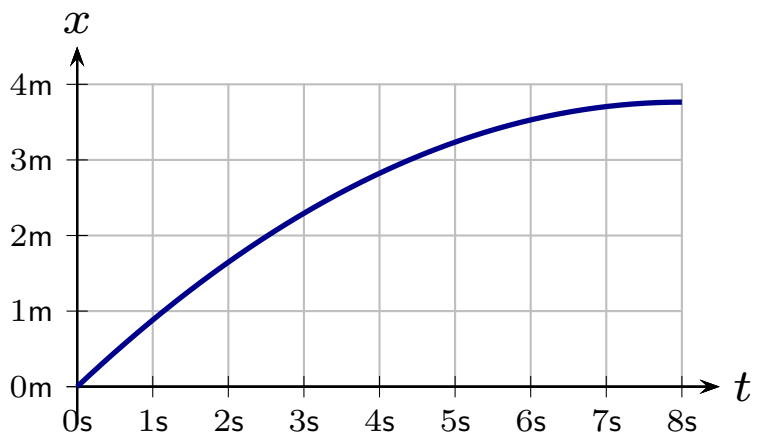


Which of the following is true during the period from $0\,\mathrm{s}$ to $6\,\mathrm{s}$?

1. Acceleration is zero.
2. Acceleration is always positive.
3. Acceleration is always negative.
4. At some times acceleration is positive; at others it is negative.

Question 4

A graph of position vs. time for an object moving in one dimension is illustrated.

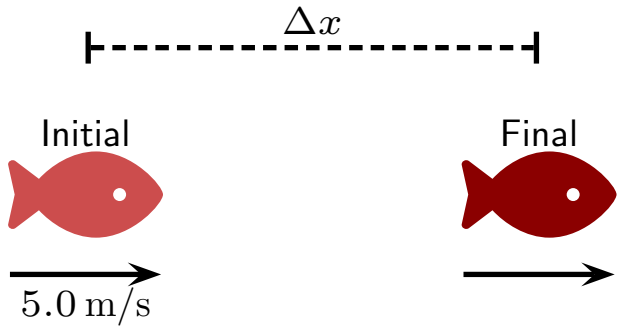


Which of following is true about the object's acceleration during the illustrated period?

1. $a = 0$ at all times.
2. $a < 0$ at all times.
3. $a > 0$ at all times.
4. $a > 0$ at some times and $a < 0$ at other times.

Question 5

A fish swims in a straight line. At an initial instant it moves right with speed $5.0\,\mathrm{m/s}$. For the next $2.0\,\mathrm{s}$, it has constant acceleration of $3.0\,\mathrm{m/s^2}$.



Which of the following is true regarding the fish's displacement over the next $2.0\,\mathrm{s}$?

1. $\Delta x < 10\,\mathrm{m}$
2. $\Delta x = 10\,\mathrm{m}$
3. $\Delta x < 10\,\mathrm{m}$