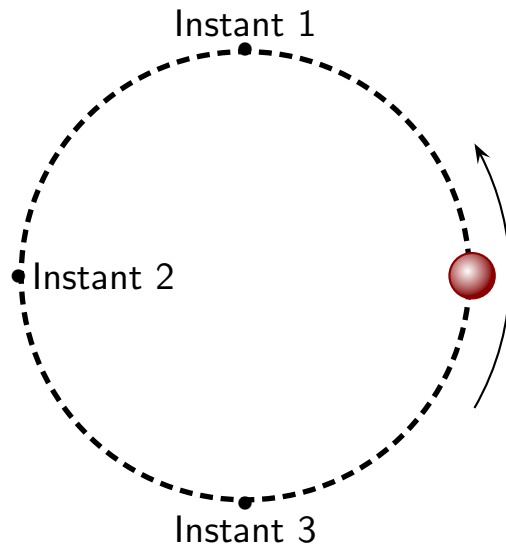


Question 1

A ball travels on a horizontal surface in a circle at a constant speed.

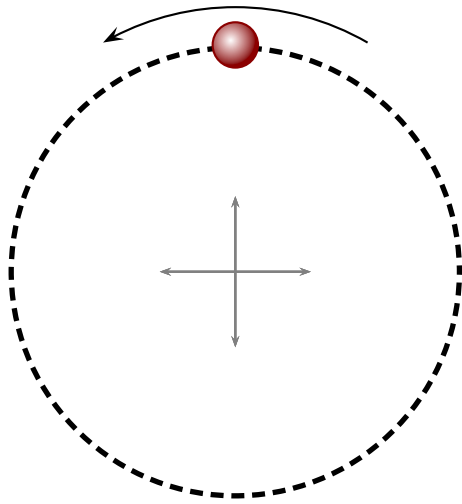


Which of the following is true?

1. The velocity of the ball is the same at all three instants.
2. The velocities of the ball at instants 1 and 3 are the same but different from instant 2.
3. The velocities of the ball at all three instants are different.

Question 2

A ball travels on a horizontal surface in a circle at a constant speed.

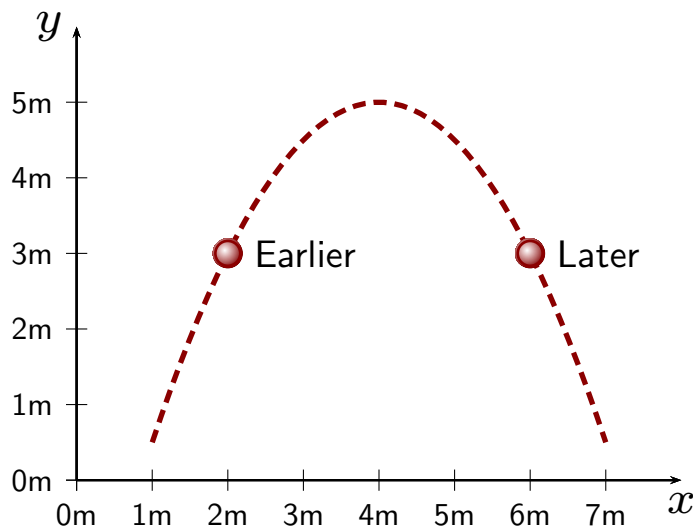


Using a coordinate system with origin at the center of the circle, which of the following is true of the velocity at the illustrated moment?

1. $v_x = 0$ and $v_y > 0$.
2. $v_x = 0$ and $v_y < 0$.
3. $v_x > 0$ and $v_y = 0$.
4. $v_x < 0$ and $v_y = 0$.
5. $v_x < 0$ and $v_y > 0$.

Question 3

A projectile follows the indicated trajectory. Its positions at two instants are indicated and at these instants its speeds are the same.

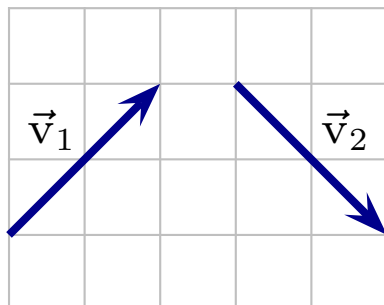


Let \vec{v}_i be the velocity at the earlier instant and \vec{v}_f be the velocity at the later instant. Which of the following is true about the components of the velocity?

1. $v_{ix} = v_{fx}$ and $v_{iy} = v_{fy}$
2. $v_{ix} = v_{fx}$ and $v_{iy} \neq v_{fy}$
3. $v_{ix} \neq v_{fx}$ and $v_{iy} = v_{fy}$
4. $v_{ix} \neq v_{fx}$ and $v_{iy} \neq v_{fy}$

Question 4

Consider a particle whose velocity vectors at two moments 2.0 s apart are as illustrated.



Which of the following best represents the average acceleration during this period?

