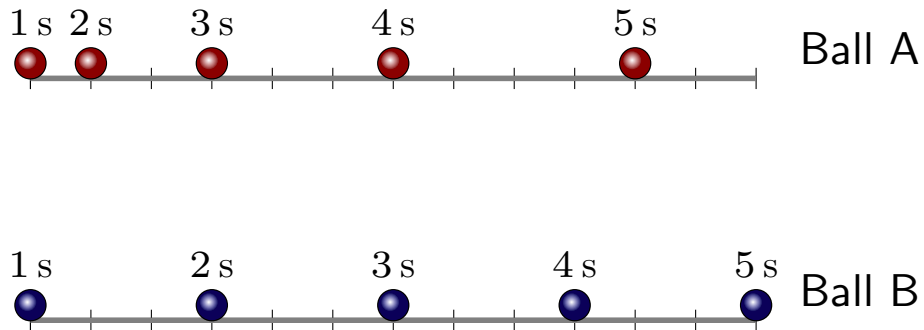


Question 1

Two balls slide along horizontal surfaces. The positions of the balls are recorded at intervals spaced 1 s apart. These are illustrated in the diagram.

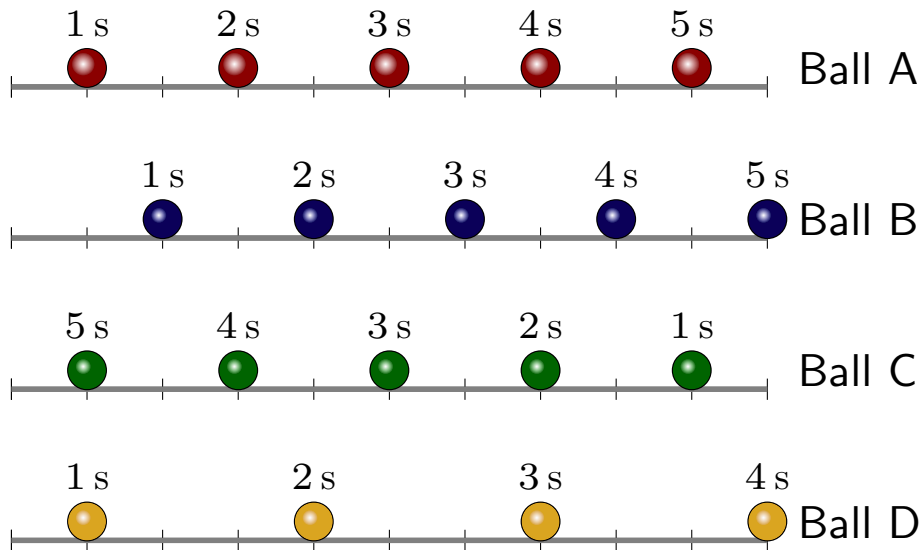


In the interval between 4 s and 5 s, which of the following is true?

1. The speed of ball A is the same as the speed of ball B.
2. The speed of ball A is larger than the speed of ball B.
3. The speed of ball A is smaller than the speed of ball B.

Question 2

Various balls move along a straight horizontal path as illustrated. Photographs of the balls at intervals spaced 1 s apart are provided.

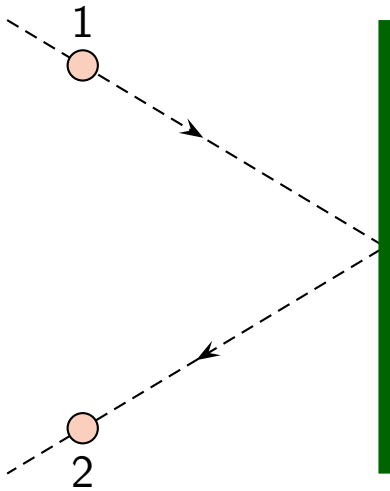


Which of the following is true during the illustrated period?

1. All have the same velocity.
2. None have the same velocity.
3. A, B, C have same velocity.
4. A and B have same velocity.
5. A and C have same velocity.

Question 3

A pool ball bounces off the side of the table and follows the indicated path. The side of the table is made from a special material so that the ball bounces off with the same speed.



Which of the following is true?

1. The velocity of the ball at 2 is the same as the velocity at 1.
2. The velocity of the ball at 2 is different to the velocity at 1.
3. It's impossible to decide about the velocity at 2 versus 1.

Question 4

A skateboarder, Alice, slides in a straight line along a horizontal surface with constant speed. She holds a ball (not moving compared to her). The situation is viewed by Bob, standing at rest on the ground. Bob focuses on the ball.

Which of the following is true, from Bob's perspective?

1. The basketball is at rest.
2. The basketball moves with a constant velocity and this points horizontally.
3. The basketball moves with a constant velocity and this points vertically.
4. The basketball moves with a velocity that changes over time.

Question 5

A skateboarder, Alice, slides in a straight line along a horizontal surface with constant speed. She initially holds a ball (not moving compared to her) and then launches it, pushing vertically upward. The situation is viewed by Bob, standing at rest on the ground. Bob focuses on the ball.

Which of the following is true, from Bob's perspective?

1. The basketball's velocity after launch is the same as before launch.
2. The basketball's velocity after launch different to that before launch.
3. The basketball's velocity could change or not during launch; this depends exactly on how it was launched.

Question 6

A skateboarder, Alice, slides in a straight line along a horizontal surface with constant speed. She initially holds a ball (not moving compared to her) and then launches it, pushing vertically upward. Alice's velocity stays the same throughout. The situation is viewed by Bob, standing at rest on the ground. Bob focuses on the ball.

Which of the following is true?

1. The basketball will land back in Alice's hands.
2. The basketball will land in front of Alice's hands.
3. The basketball will land behind Alice's hands.