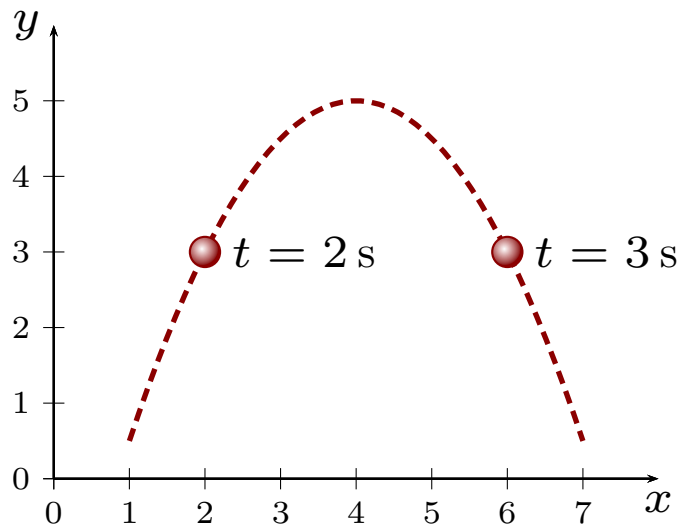


# Question 1

A projectile moves along the indicated trajectory.



Which of the following is true regarding the average acceleration between the two instants?

1. Acceleration is zero.
2.  $\vec{a}_{\text{avg}}$  has direction  $\leftarrow$ .
3.  $\vec{a}_{\text{avg}}$  has direction  $\rightarrow$ .
4.  $\vec{a}_{\text{avg}}$  has direction  $\downarrow$ .
5.  $\vec{a}_{\text{avg}}$  has direction  $\searrow$ .

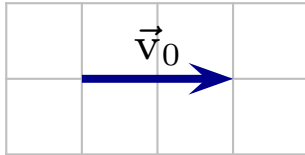
## Question 2

A ship passes the shore at a constant velocity. At one instant a passenger, Angela, on the ship throws a basketball straight up (according to her). Brody standing on the shore observes this. According to Brody, will the ball land in Angela's hands, behind Angela or in front of her? Ignore any air resistance.

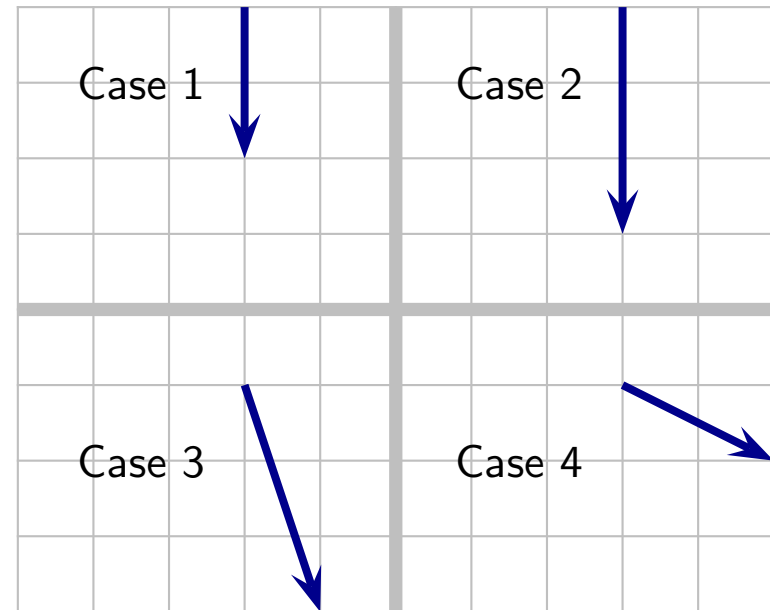
1. In front, in all cases.
2. Behind, in all cases.
3. In front, if the ship moves fast enough.
4. Behind, if the ship moves fast enough.
5. In her hands.

## Question 3

A ball is launched horizontally with the indicated initial velocity.



Which of the following best represents the velocity just before hitting the ground?



## Question 4

A ball is launched horizontally above the ground. Which of the following best represents its trajectory?

