Warm Up Question 1

A ship passes the shore at a constant speed. 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, or behind Angela or in front of her? Ignore any air resistance. Explain your choice.

1. In Angela's hands. Horizontal components are same for ship and ball.
2. In Angela's hands. The ball travels with the same constant velocity as the ship.
3. Behind Angela. Horizontal motions are different.
4. In front of Angela. Horizontal motions are different.

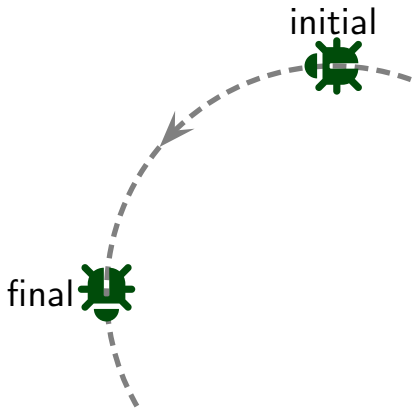
Warm Up Question 2

A ball, held by a string, swings in a circle with constant speed. Is the acceleration zero or non-zero? Is it constant or not? Explain your answer.

1. Acceleration non-zero. Acceleration is constant. Direction of velocity changes.
2. Acceleration non-zero. Acceleration is not constant. Direction of velocity changes.
3. Acceleration zero. Speed is constant.

Question 1

A bug moves along a circular arc at a constant speed.



Which of the following is true about the average acceleration from the initial instant to the final instant as illustrated?

1. $\vec{a}_{av} = 0$
2. $\vec{a}_{av} \neq 0$ with direction ←
3. $\vec{a}_{av} \neq 0$ with direction ↓
4. $\vec{a}_{av} \neq 0$ with direction ↘
5. $\vec{a}_{av} \neq 0$ with direction ↙