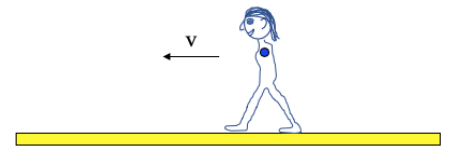


Off-the-wall question #1: A woman walking with constant velocity crosses a horizontal floor with a ball held at shoulder height out away from her body. At some point as she is walking, she releases the ball, continuing to walk with constant velocity after the release.



a.) The ball lands: _____ in front of her _____ next to her _____ behind her

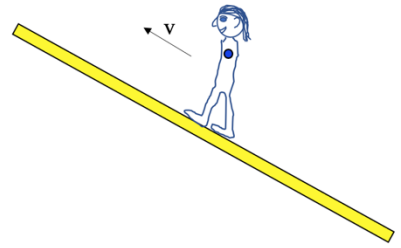
Justify your response using Newton's Laws.

b.) Justify your response to the question in *Part a* in a second way.

c.) The woman repeats the experiment, except now she is walking up an incline. She drops the ball as before, continuing to walk with a constant velocity. The ball lands:

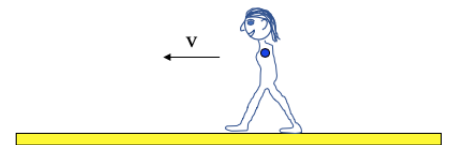
_____ in front of her _____ next to her _____ behind her



Justify your response anyway you can.



The woman repeats the experiment with several big differences. She is back on the horizontal surface, walking with constant velocity, but now she is carrying a ball in one hand and a cube in the other. The ball and cube are of like dimensions (that is, the diameter of the ball is the same as the length of one side of the cube), and the two have the same mass. Additionally, even though she is able to power through it, maintaining a constant velocity, the woman is now moving through a viscous fluid that produces drag on objects that move through it.

d.) She releases the ball and the cube at the same time. Where will the ball and cube land? Justify your response.



 ball
 cube
 same mass