

- 1) A small cart is sitting at its starting point in the middle of a straight track. If you give the cart a push in the positive direction, what will happen to the cart? Circle all that apply.
- ☒ a. The speed of the cart will increase.
 - ☐ b. The displacement of the cart will decrease.
 - ☒ c. The velocity of the cart will increase.
 - ☒ d. The displacement of the cart will increase.
 - ☐ e. The velocity of the cart will decrease.
- 2) Starting from one shore, you swim east across a narrow river to the other shore. The river is 19.0 m wide. As you swim, the river current moves you north up the river a distance of 12.0 m. Draw a diagram representing this situation. What is your resultant displacement? Express your answer in components, and then determine the magnitude.
- 3) A child releases a balloon at a park. The balloon travels up into the air 8.20 m, and east across the park a distance of 23.0 m, before getting stuck in a tree. Draw a diagram representing this situation. What is the resultant displacement of the balloon? Express your answer in components, and then determine the magnitude.
- 4) A bird drops a feather from the roof of a 13.1 m tall building. The feather is blown 48.6 m west before falling to the ground. What is the resultant displacement of the feather?
- a. 7.90 m
 - b. 10.6 m
 - c. 61.7 m
 - d. 50.3 m