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Chapter 3 Guide Practice (Remember to draw your vectors)

1. A truck driver is attempting to deliver some furniture. First, he travels 8 km east, and then he turns around and travels 3 km west. Finally he turns again and travels 12 km east to his destination.
2. What distance has the driver traveled?
3. What is the driver’s total displacement?
4. While following the direction on a treasure map, a pirate walks 45.0 m north and then turns and walks 7.5 m east. What single straight line displacement could the pirate taken to reach the treasure?
5. How fast must a truck travel to stay beneath an airplane that is moving 105 km/h at an angle of 25° to the ground?
6. A truck drives up a hill with a 15° incline. If the truck has a constant speed of 22 m/s, what are the horizontal and vertical components of the truck’s velocity?
7. A football player runs directly down the field for 35 m before turning to the right at the angle of 25° from his original direction and running an additional 15 m before getting tackled. What is the magnitude and direction of the runner’s total displacement?
8. During a rodeo, a clown runs 8.0 m north, turns 55° north of east and runs 3.5 m. Then, after waiting for the bull to come near, the clown turns due east and runs 5.0 m to exit the arena. What is the clown’s total displacement?
9. A ferry is crossing a river. If the ferry is headed due north with a speed of 2.5 m/s relative to the water and the river’s velocity is 3.0 m/s to the east, what will the boat’s velocity relative to Earth be? (Hint: Remember to include the direction in describing the velocity)
10. A pet-store supply truck moves at 25.0 m/s north along a highway. Inside, a dog moves at 1.75 m/s at an angle of 35.0° east of north. What is the velocity of the dog relative to the road?