# 8th Grade Science – Week 3

**Equations:** $displacement\ (d) = position\ final - position\ initial = x_f - x_0$

$$average\ speed = \bar{v} = \frac{distance}{time} = \frac{d}{t}$$

$$average\ velocity = \bar{v} = \frac{\Delta\ displacement}{\Delta\ time} = \frac{x - x_0}{t}$$

1. An animal walks 1300 meters east to a creek for a drink of water. The animal then walks 500 meters west to get some food. Then after this animal was startled by a loud sound, it ran 300 meters west. What distance did the animal travel?
   (A) 500 m
   (B) 1000 m
   (C) 1300 m
   (D) 2100 m

2. An animal walks 1300 meters east to a creek for a drink of water. The animal then walks 500 meters west to get some food. Then after being startled by a loud sound, the animal ran 300 meters west. What displacement did the animal travel?
   (A) 500 m east
   (B) 500 m west
   (C) 2100 m east
   (D) 2100 m west

3. Which of the following is a vector quantity?
   (A) Speed
   (B) Time
   (C) Distance
   (D) Displacement

4. What is a similarity and a difference between a scalar and a vector quantity?
   (A) Both have direction, but vector has magnitude
   (B) Both have magnitude, but vector has direction
   (C) Both have direction, but scalar has magnitude
   (D) Both have direction, but vector has magnitude

5. A person walked 10 meters north and then 14 meters south in 6 seconds. What is this person's average speed?
   (A) 2 m/s
   (B) 4 m/s
   (C) 6 m/s
   (D) 8 m/s

6. A person walked 10 meters north and then 14 meters south in 6 seconds. What is this person's average velocity?
   (A) 0.50 m/s north
   (B) 0.50 m/s south
   (C) 0.67 m/s north
   (D) 0.67 m/s south

**Questions 7-10 refer to the following displacement-time graph of a person walking.**
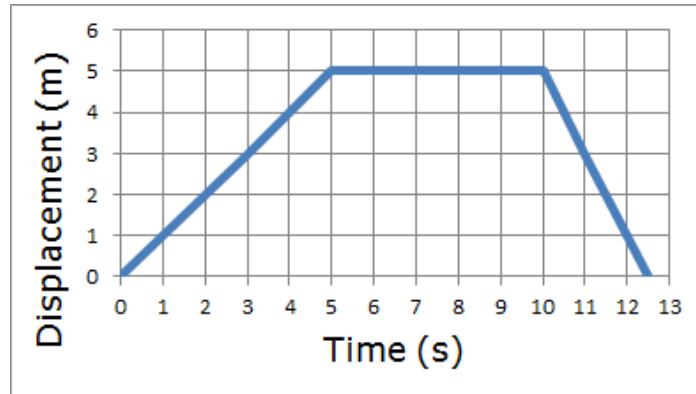


7. What time segment does the person stand still?
   (A) 0-5 seconds
   (B) 5-10 seconds
   (C) 10-12.5 seconds
   (D) Never, the person is always moving

8. What is the average speed of the person in the first 5 seconds?
   (A) 0.25 m/s
   (B) 0.50 m/s
   (C) 0.75 m/s
   (D) 1.00 m/s

9. What was the total distance the person traveled in the total time walked?
   (A) 0 m
   (B) 5 m
   (C) 7.5 m
   (D) 10 m

10. What was the displacement the person traveled in the total time walked?
   (A) 0 m
   (B) 5 m
   (C) 7.5 m
   (D) 10 m