

## Physics Problem Set 1 - Week 1 (5576015)

Question [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#) [10](#) [11](#) [12](#)

1. Question Details OSColPhys1 1.P.011.WA. [2707330]

What is the height in meters of a 5-foot-3-inch tall person?

 1.6 m

Supporting Materials

[Physical Constants](#)

2. Question Details OSColPhys1 1.P.008.WA. [2707446]

The speed limit on certain interstate highways is 55 miles per hour.

(a) What is this in feet per second?

 80.7 ft/s

(b) How many kilometers per hour is this?

 88.5 km/h

Supporting Materials

[Physical Constants](#)

3. Question Details OSColPhys1 2.1.001. [2153645]

Find the following for path A in Figure 2.21.

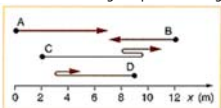


Figure 1-21.

(a) the total distance traveled

 7 m

(b) the distance from start to finish

 7 m

(c) the displacement from start to finish

 7 m

4. Question Details OSColPhys1 2.P.003.WA. [2707378]

Two soccer players kick a soccer ball back and forth along a straight line. The first player kicks the ball 12 m to the right to the second player. The second player kicks the ball to the left weakly; it only moves 1.7 m before stopping. (Consider the right to be the positive direction. Where applicable, indicate the direction with the sign of your answer.)

(a) What is the total distance that the ball moved?

 13.7 m

(b) At the end, what is the displacement of the ball (from the first player)?

 10.3 m

Supporting Materials

[Physical Constants](#)

5. Question Details OSColPhys1 2.P.005.WA. [2707427]

Nerve impulses in the human body travel at a speed of about 100 m/s. A 2.0 m tall man accidentally drops a hammer on his toe. How long does it take for the nerve impulse to travel from his toe to his brain?

 0.02 s

Supporting Materials

[Physical Constants](#)

6. Question Details OSColPhys1 1.P.013.WA. [2707413]

Tectonic plates are large segments of the Earth's crust that move slowly. Suppose one such plate has an average speed of 6.4 cm per year.

(a) What distance does it move in 80 seconds at this speed?

 1.62e-07 m

(b) What is its speed in miles per million years?

 39.8 mi/million yr

Supporting Materials

[Physical Constants](#)

7. Question Details OSColPhys1 2.P.006.WA. [2707441]

A car moves in a straight line at a speed of 50.0 km/h.

(a) How far will the car move in 3.00 minutes at this speed?

 2.5 km

(b) How long will it take the car to move 0.36 km at this speed?

 25.9 s

Supporting Materials

[Physical Constants](#)

8. Question Details OSColPhys1 2.3.006. [2153252]

A helicopter blade spins at 120 revolutions per minute. Its tip is 3.50 m from the center of rotation.

(a) Calculate the average speed of the blade tip in the helicopter's frame of reference.

m/s

(b) What is its average velocity over one revolution?

m/s

9. Question Details OSColPhys1 2.P.007.WA. [2707274]

A woman drives a car from one city to another with different constant speeds along the trip. She drives at a speed of 90.0 km/h for 20.0 min, 95.0 km/h for 25.0 min, makes a stop for 45.0 min, then continues at 45.0 km/h for 30.0 min, at which point she reaches her destination.

(a) What is the total distance between her starting point and destination (in km)?

km

(b) What is the average speed for the entire trip (in units of km/h)?

km/h

Supporting Materials

[Physical Constants](#)

10. Question Details OSColPhys1 2.P.008.WA. [2833974]

A car moves in a straight line at 18.0 m/s for 10.0 miles, then at 30.0 m/s for another 10.0 miles.

(a) Is the car's average speed less than, greater than, or equal to 24.0 m/s?

- less than 24.0 m/s  
 equal to 24.0 m/s  
 greater than 24.0 m/s

(b) Calculate the car's average speed. (Enter your answer to three significant figures.)

m/s

Supporting Materials

[Physical Constants](#)

11. Question Details OSColPhys1 2.P.009.WA. [2707447]

A particle moves in one dimension, and its position as a function of time is given by  $x = (1.8 \text{ m/s})t + (-2.8 \text{ m/s}^2)t^2$ .

(a) What is the particle's average velocity from  $t = 0.45 \text{ s}$  to  $t = 0.55 \text{ s}$ ? (Indicate the direction with the sign of your answer.)

m/s

(b) What is the particle's average velocity from  $t = 0.49 \text{ s}$  to  $t = 0.51 \text{ s}$ ? (Indicate the direction with the sign of your answer.)

m/s

Supporting Materials

[Physical Constants](#)

12. Question Details OSColPhys1 2.P.010.WA. [2707323]

You walk for 6.44 km with a constant velocity of 2.52 m/s due west, turn around, and then walk with an average velocity of 0.435 m/s due east. From your starting point to your destination, your overall average velocity is 1.33 m/s due west.

During the trip, how far east did you walk?

m

Supporting Materials

[Physical Constants](#)

Assignment Details

Name (AID): **Physics Problem Set 1 - Week 1 (5576015)**Submissions Allowed: **5**Category: **Homework**

Code:

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