

Physical Science  
Wkst - Review I for Chapter 2 Motion

Key

D 1. A measure of the path taken by an object is known as its \_\_\_\_\_  
A. motion  
B. velocity  
C. displacement  
D. distance

B 2. The distance and direction of the object's change in position is known as its \_\_\_\_\_  
A. motion  
B. velocity  
C. displacement  
D. distance

3. You get out of your desk, walk 20 m, take a book from a table, walk back to your seat and sit down.  
a) What is the distance you traveled? 20 m

b) What is your displacement? 0 m Returned to original location

I CAN Explain the difference between speed and velocity

A 4. The distance an object travels per unit of time is known as its \_\_\_\_\_  
A. speed  
B. velocity  
C. displacement  
D. distance

B 5. The speed of an object and the direction of its motion is known as its \_\_\_\_\_  
A. speed  
B. velocity  
C. displacement  
D. distance

A 6. The speed you read on a speedometer is an example of \_\_\_\_\_  
A. instantaneous speed  
B. constant speed  
C. average speed  
D. velocity

7. A dog runs 2 km in 0.4 hr. Calculate the dog's speed.

Given:

$$V = ?$$

$$D = 2 \text{ km}$$

$$T = 0.4 \text{ hr}$$

Soln:  $V = \frac{D}{T}$

$$V = \frac{2 \text{ km}}{0.4 \text{ hr}}$$

$$V = 5 \text{ km/hr}$$

8. A car is moving with a constant speed of 15.0 m/s along a straight path. What is the distance covered by the car in 720 sec?

Given:

$$V = 15.0 \text{ m/s} \quad t = 720 \text{ sec}$$

$$D = ?$$

Soln:  $V = \frac{D}{T}$   
 $D = V \cdot T$

$$D = (15.0 \text{ m/s}) (720 \text{ s})$$

$$D = 10800 \text{ m}$$

9. You travel 190 km in 2 h. What is your speed in km/s?

Given:  
 $X = 190 \text{ km}$   
 $V = ?$   
 $\Delta t = 2 \text{ hr}$

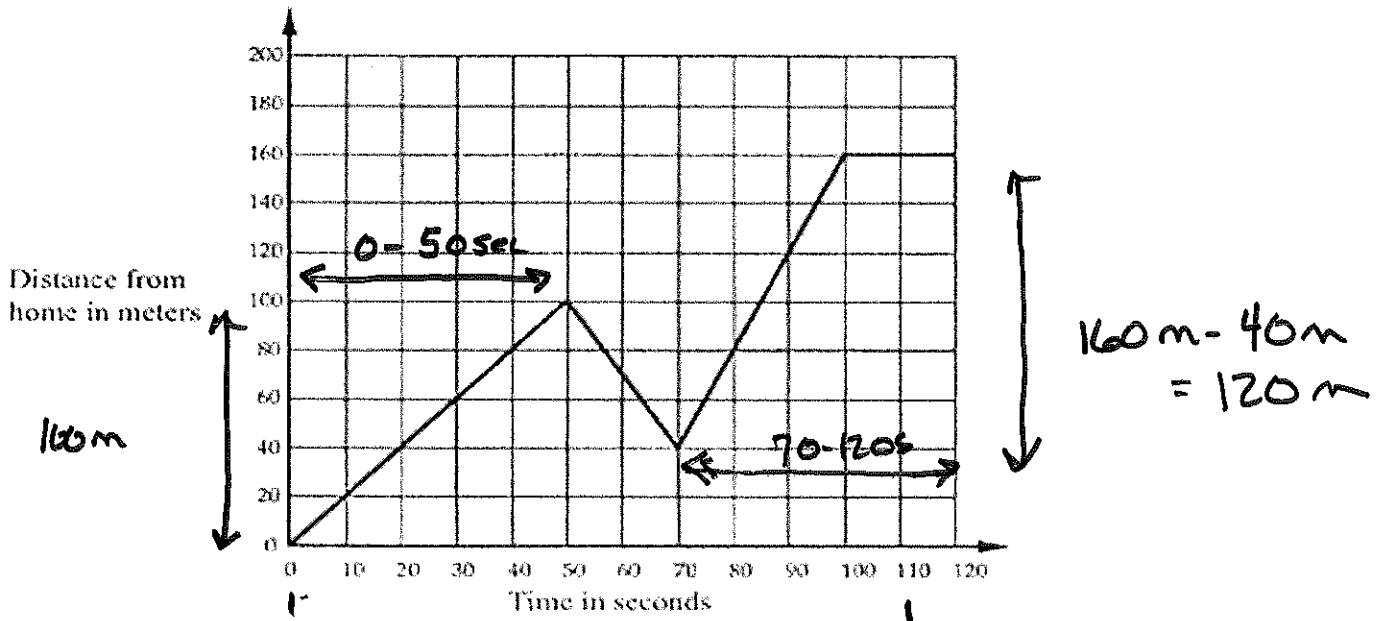
Soln:  $V = \frac{D}{T}$   
 $V = \frac{190 \text{ km}}{2 \text{ hr}}$

$V = 95 \text{ km/hr}$

10. Explain the difference between speed and velocity.

Speed has magnitude only (value) -  
 Velocity has magnitude & direction  
 ↳ speed

I CAN Interpret motion graphs



11. Explain the motion between 0-50 sec \*use specific speed(s) (show your work)

Given:  
 $V = ?$   
 $D = 160 \text{ m}$   
 $T = 50 \text{ s}$

Soln:  $V = \frac{D}{T}$   
 $= \frac{160 \text{ m}}{50 \text{ s}}$

$V = 2 \text{ m/s}$

12. Explain the motion between 70-120 sec \*use specific speed(s) (show your work)

Given:  
 $V = ?$   
 $\Delta D = 160 \text{ m} - 40 \text{ m} = 120 \text{ m}$   
 $\Delta T = 120 \text{ s} - 70 \text{ s} = 50 \text{ s}$

Soln:  $V = \frac{D}{T}$

$V = \frac{120 \text{ m}}{50 \text{ s}}$

$V = 2.4 \text{ m/s}$

13. What is the average speed over 110 seconds?

Given:  $V = ?$   
 $\Delta D = 160 \text{ m}$   
 $\Delta t = 110 \text{ s}$

Soln:  $V = \frac{D}{T}$

$V = \frac{160 \text{ m}}{110 \text{ s}}$

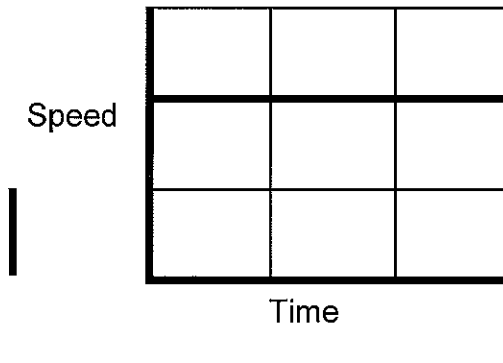
$V = 1.45 \text{ m/s}$

I CAN Describe how acceleration, time, and velocity are related

- C 14. Acceleration is the rate of change of \_\_\_\_\_.
- A. position
  - B. time
  - C. velocity
  - D. force

- A 15. To describe the velocity of an object, you need to know \_\_\_\_\_.
- A. speed and direction,
  - B. speed and time
  - C. direction and acceleration
  - D. speed and acceleration
- magnitude

I CAN Explain how positive and negative acceleration affect motion



- D 16. A horizontal line on the acceleration graph above shows \_\_\_\_\_ acceleration.
- A. positive
  - B. negative
  - C. changing
  - D. zero

I CAN Calculate the acceleration of an object

17. Find the acceleration of a car that goes from 32 m/s to 96 m/s in 8 s.

Given:

$a = ?$   $\Delta t = 8\text{ s}$

$v_f = 96\text{ m/s}$

$v_i = 32\text{ m/s}$

Soln:  $a = \frac{v_f - v_i}{\Delta t}$

$a = \frac{96\text{ m/s} - 32\text{ m/s}}{8\text{ s}}$

$a = \frac{64\text{ m/s}}{8\text{ s}}$

$a = 8\text{ m/s}^2$

18. An ostrich accelerates at  $8\text{ m/s}^2$  to a speed of 40 m/s. If the ostrich was already running with a speed of 5 m/s, how long did it take to accelerate to its final speed?

Given:

$a = 8\text{ m/s}^2$

$v_f = 40\text{ m/s}$

$v_i = 5\text{ m/s}$

$\Delta t = ?$

Soln:  $a = \frac{v_f - v_i}{\Delta t}$

$\Delta t = \frac{v_f - v_i}{a}$

$\Delta t = \frac{40\text{ m/s} - 5\text{ m/s}}{8\text{ m/s}^2}$

$\Delta t = \frac{35\text{ m/s}}{8\text{ m/s}^2}$

$\Delta t = 4.38\text{ s}$