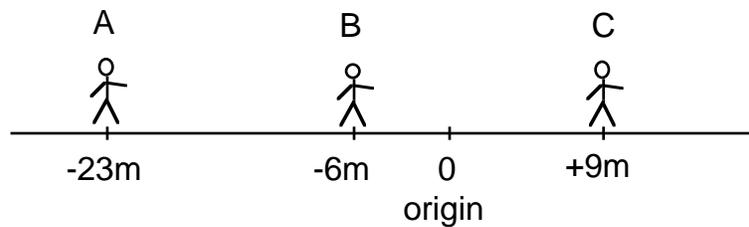


Intro to Physics : Quiz-70

1) Define the following terms:

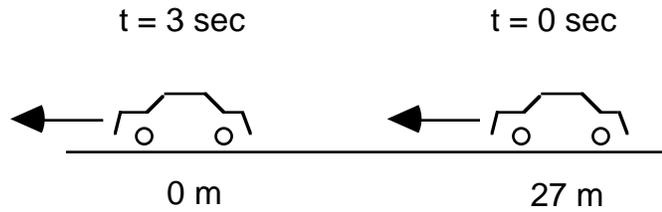
- a) mass
- b) force
- c) gravity
- d) weight
- e) friction
- f) net force
- g) displacement
- h) velocity
- i) unbalanced force

2)



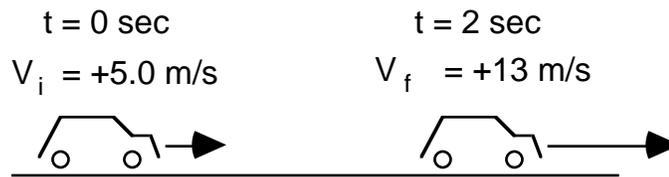
- a) The displacement of A is _____ .
- b) The distance between B and C is _____ .
- c) The displacement of A relative to C is _____ .

3)



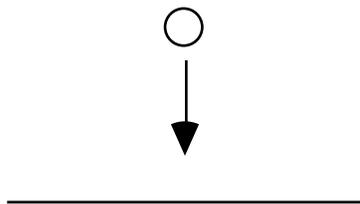
- a) The speed of the car is _____ .
- b) The velocity of the car is _____ .
- c) The displacement of the car at $t = 1.5 \text{ s}$ is _____ .
- d) At what time will the displacement be -18 m ? _____ .

4)



- a) The acceleration is _____ .
- b) The velocity at time = 6 s is _____ .

5) A ball falls from rest, on Earth, starting at time $t = 0$.



- a) The acceleration is _____ .
- b) The velocity at time $t = 4 \text{ s}$ is _____ .

6) A car accelerates at 4.5 m/s^2 . Are the forces acting on the car balanced or unbalanced?

7) A 5 kg box has the following horizontal forces acting on it: +3 N, +8 N, -7 N, +11 N, and -5N.

a) The weight of the box is _____ .

b) The normal force is _____ .

c) The net force is _____ .

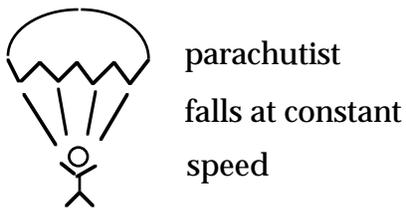
d) The acceleration is _____ .

8) A 650 kg car accelerates at $+5 \text{ m/s}^2$. What is the force exerted by the motor?

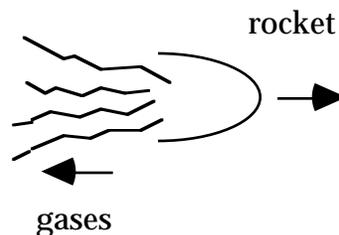
9) State Newton's three laws of motion.

10) Which of Newton's laws (give number) explains the following situations shown below.

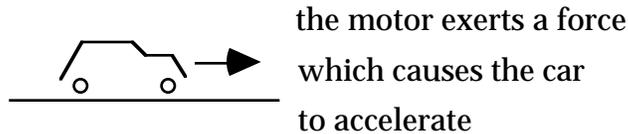
a)



b)



c)



the motor exerts a force
which causes the car
to accelerate

11)a) Find the force of gravity between the Earth and the shuttle when the shuttle is in orbit.

$$\text{Earth mass} = 6.0 \times 10^{24} \text{ kg}$$

$$\text{Shuttle mass} = 1.0 \times 10^5 \text{ kg}$$

$$\text{Distance from shuttle to Earth's center} = 6.6 \times 10^6 \text{ m.}$$

b) Find the weight of the shuttle when it is on the ground.

12) Two objects, which are 2 m apart, have a force between them of 72 N.

a) If the distance between them is reduced to 1 m, what is the force between them?

b) If the distance between them is increased to 4 m, what is the force between them?

c) If the distance between them is increased to 6 m, what is the force between them?

Answers: 1)a) it is the quantity of matter, b) it is a push or a pull, c) it is an attractive force between any two masses, d) it is the force of gravity, e) It is a force that opposes motion, f) it is the sum of all of the forces acting on an object, g) it is the distance relative to some origin, h) it is the change in displacement divided by the time, i) a force is unbalanced if the net force is not zero, 2)a) -23m, b) 15m, c) -32m, 3)a) 9m/s, b) -9m/s, c) +13.5m, d) 5s, 4)a) 4m/s², b) 29m/s, 5)a) -9.8m/s², b) -39.2m/s, 6) unbalanced, 7)a) -49N, b) +49N, c) +10N, d) +2m/s², 8) 3250N, 9) 1) An object will remain at rest or continue moving in a straight line unless acted on by an unbalanced force., 2) The net force acting on an object is equal to the mass multiplied by the acceleration., 3) For every action there is an equal and opposite

reaction., 10)a) 1, b) 3, c) 2, 11)a) $9.2 \times 10^5 \text{N}$, b) $9.8 \times 10^5 \text{N}$, 12)a) 288N, b) 18N, c) 8N.