

# < WorkSheet

## Physics

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1) Pull of earth on a mass of 20 kg at surface of earth is:

- A) 196 N  
B) 1960 N  
C) 20 N  
D) 19.6 N

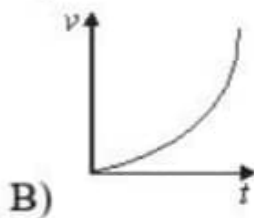
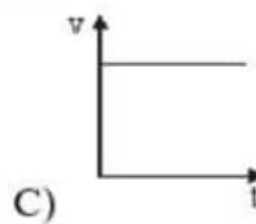
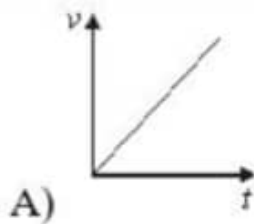
A       B       C       D

2) Distance covered by a freely falling body in 2 seconds will be:

- A) 4.9 m  
B) 19.6 m  
C) 39.2 m  
D) 9.8 m

A       B       C       D

3) For which of the following graph/graphs, both velocity and acceleration are constant:



D) None of these

A       B       C       D

4) 1<sup>st</sup> law of motion gives definition of:

- A) Mass  
B) Inertia  
C) Force  
D) Momentum

A       B       C       D

**5) One Newton is the force:**

A) Of gravity on  $\frac{1}{g}$  kg body

B) Of gravity on a 1 g body

C) That gives a 1 kg body an acceleration of  $1 \text{ m s}^{-2}$

D) Both "A" and "C"

A       B       C       D

**6) A 7.0 kg ball experiences a net force of 7.0 N what will be its acceleration?**

A)  $10 \text{ m s}^{-2}$

C)  $1 \text{ m s}^{-2}$

B)  $5.0 \text{ m s}^{-2}$

D)  $35.0 \text{ m s}^{-2}$

A       B       C       D

**7) A force  $2F$  acting on a particle of mass 10 kg produces an acceleration of  $60 \text{ m s}^{-2}$ . A force  $5F$  acting on a particle of mass  $M$  produces an acceleration of  $50 \text{ m s}^{-2}$ . What is the mass  $M$ ?**

A) 3.3 kg

C) 21 kg

B) 4.8 kg

D) 30 kg

A       B       C       D

**8) The Newton's 2<sup>nd</sup> law:**

A) Defines force

C) Balances force

B) Measures force

D) All of these

A       B       C       D

9) A ball of mass  $m_1$  and another ball of  $m_2$  are dropped from equal heights. If  $m_1$  is twice as compared to  $m_2$ , then time taken by the balls  $t_1$  and  $t_2$  are related as:

A)  $t_1 = \frac{t_2}{2}$

C)  $t_1 = 4t_2$

B)  $t_1 = t_2$

D)  $t_1 = \frac{t_2}{4}$

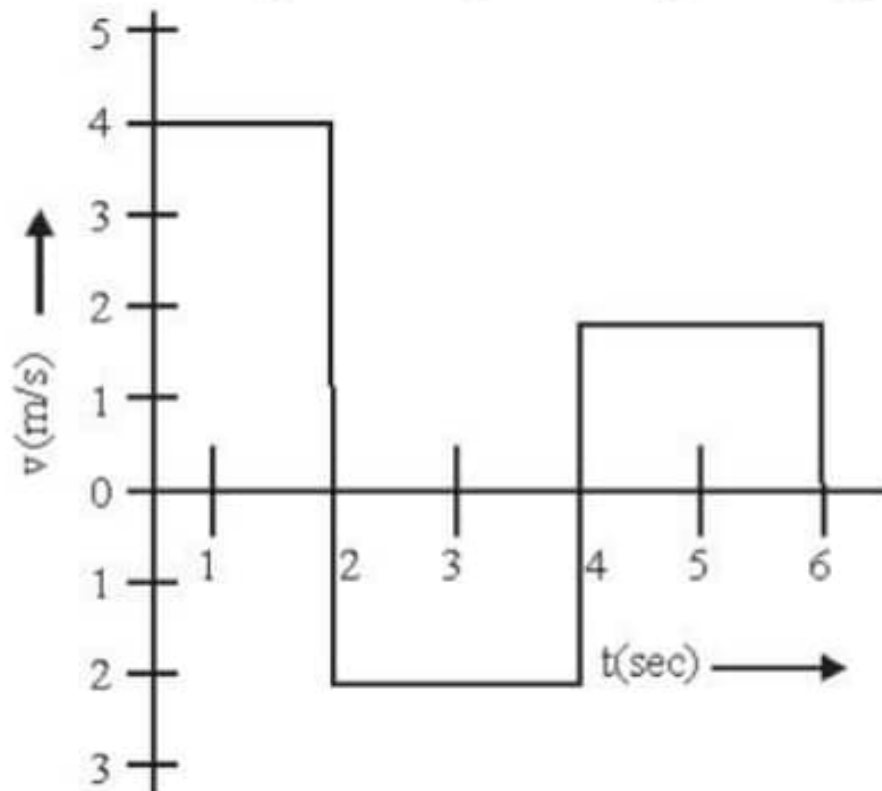
A

B

C

D

10) The velocity-time graph of a body moving in a straight line is shown in the figure. The displacement and distance travelled by the body in 6 sec, are respectively.



A) 8 m , 16 m

C) 16 m , 8 m

B) 16 m , 16 m

D) 8 m , 8 m

A

B

C

D

**11)** A steel ball covers half the distance with velocity  $v_i$  and the other half with velocity  $v_f$  in the same straight line. The average velocity of ball is:

A)  $\frac{v_i + v_f}{2}$

C)  $\frac{v_i v_f}{v_i + v_f}$

B)  $v_i + v_f$

D)  $\frac{2v_i v_f}{v_i + v_f}$

A

B

C

D

**12)** A 60 m long train is moving in a direction with speed 20  $\text{m s}^{-1}$ . Another train moving with 30  $\text{m s}^{-1}$  in the opposite direction and 40 m long crosses the first train in:

A) 5 s

C) 2 s

B) 6 s

D) 4 s

A

B

C

D

**13)** A car covers  $\frac{2}{3}$  distance with 60  $\text{m s}^{-1}$  and  $\frac{1}{3}$  distance with 20  $\text{m s}^{-1}$ . Average speed is:

A) 36  $\text{m s}^{-1}$

C) 66  $\text{m s}^{-1}$

B) 46  $\text{m s}^{-1}$

D) 56  $\text{m s}^{-1}$

A

B

C

D

**14)** A person standing on a horizontal floor feels two forces: The downward pull of gravity and the upward supporting force from the floor. These two forces:

A) Have equal magnitude and form an action/reaction pair

B) Have equal magnitude but do not form an action/reaction pair

C) Have unequal magnitudes

D) Are equal forces

A

B

C

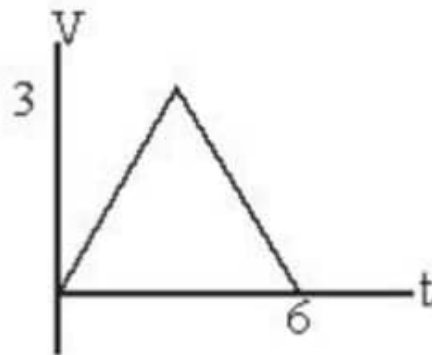
D

**15) An object with a constant speed:**

- A) Is not accelerated
- B) Might be accelerated
- C) Is always accelerated
- D) Also has a constant velocity

A       B       C       D

**16) In the figure, distance covered is:**



- A) 9 units
- B) 6 units
- C) 3 units
- D) 18 units

A       B       C       D

**17) The ratio of distance to magnitude of displacement when a body covers a semicircle is:**

- A)  $\frac{\pi}{2}$
- B)  $\pi R$
- C)  $\frac{1}{\pi}$
- D)  $\frac{\pi}{4}$

A       B       C       D

**18)** Distance travelled by a body falling freely starting from rest in the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> seconds are in the ratio:

A) 1:4:9

C) 1:2:3

B) 1:3:5

D) 1:2:5

A

B

C

D

**19)** Throwing a package onto shore from a boat that was previously at rest causes the boat to move outward from shore, is explained by:

A) Newton's 1<sup>st</sup> law of motion

B) Newton's 2<sup>nd</sup> law of motion

C) Newton's 3<sup>rd</sup> law of motion

D) Conservation of momentum

A

B

C

D

**20)** A body is released from a height of 5 m. If friction is ignored then its velocity just before striking the ground will be ( $g = 10 \text{ m s}^{-2}$ ):

A)  $5 \text{ m s}^{-1}$

C)  $15 \text{ m s}^{-1}$

B)  $10 \text{ m s}^{-1}$

D)  $20 \text{ m s}^{-1}$

A

B

C

D





**25)** If a body starts from a point and returns back to the same point then its:

- A) Average speed is zero but not average velocity
- B) Average speed and velocity depend on the path
- C) Both average speed and velocity are zero
- D) Average velocity is zero but not average speed

A       B       C       D

**26)** Which pair contains one scalar & one vector:

- A) Acceleration, force
- B) Momentum, velocity
- C) Force, K.E
- D) Work, P.E

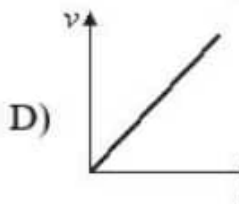
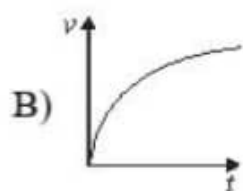
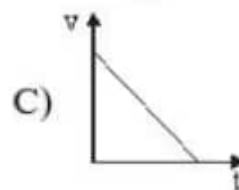
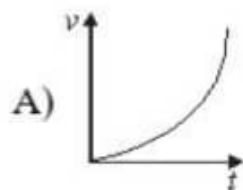
A       B       C       D

**27)** All statements are correct about third law of motion except:

- A) Forces have equal magnitude
- B) Both forces have opposite direction
- C) Both forces are applied on different bodies
- D) Both are applied on same body maintaining equilibrium

A       B       C       D

**28)** Which of the following is decreasing acceleration graph?



A       B       C       D

**29)** Which of the following sets of displacements have equal resultants when performed in the order given?

I: 6 m east, 9 m north, 12 m west

II: 6 m north, 9 m west, 12 m east

III: 6 m east, 12 m west, 9 m north

IV: 9 m north, 6 m east, 12 m west

A) I and IV

C) I and II

B) I, III and IV

D) II and IV

A       B       C       D

**30)** The value of ratio of displacement to distance is:

A) Always one

C) More than one

B) Always less than one

D) Equal or less than one

A       B       C       D

**31)** A body is dropped from the top of the tower and reaches the ground in 3 s then the height of the tower is:

A) 39.2 m

C) 98 m

B) 44.1 m

D) 18.6 m

A       B       C       D

**32)** A particle is thrown vertically upwards. If its velocity at half of the maximum height is  $10 \text{ m s}^{-1}$ , then maximum height attained by it is (take  $g=10 \text{ m s}^{-2}$ ):

A) 8 m

C) 10 m

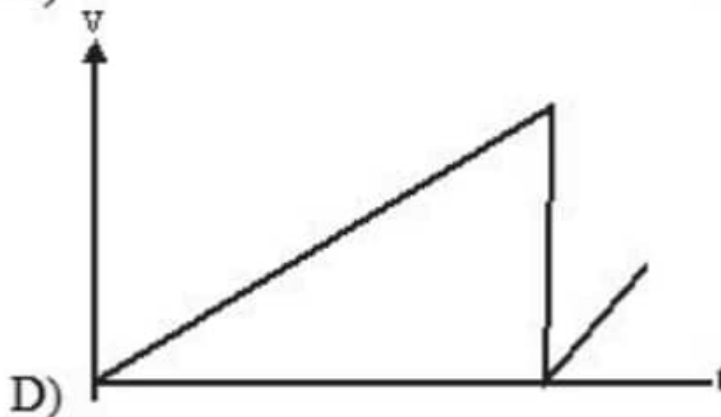
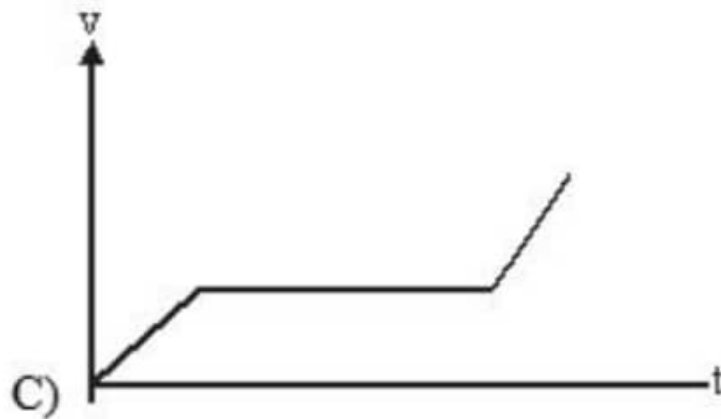
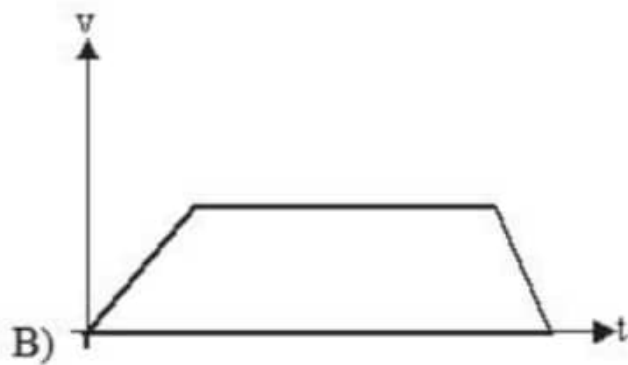
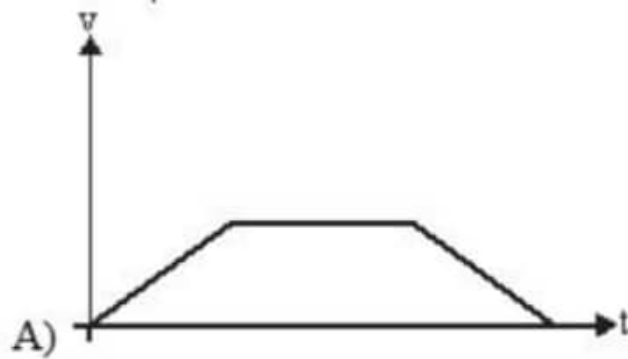
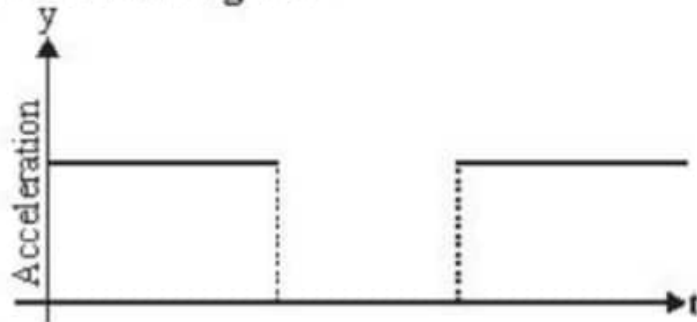
B) 12 m

D) 16 m

A       B       C       D

33)

Which of the following represents the velocity - time graph corresponding to the acceleration - time (a-t) graph shown in figure:

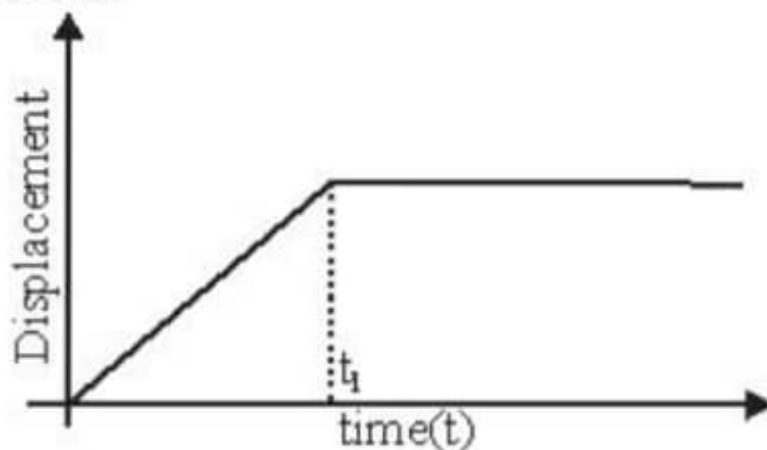


**34)** A car is said to be moving with a constant acceleration, it is possible if

- A) Velocity may not change at all
- B) Velocity may decrease at a constant rate
- C) Velocity may increase at a constant rate
- D) All of these

A       B       C       D

**35)** The displacement - time graph shown in figure represents:



- A) Constant velocity
- B) Velocity of body is continuously changing
- C) Instantaneous velocity
- D) The body travels with constant speed up to time  $t_1$  and then stops

A       B       C       D

**36)** The slope of displacement-time graph provides:

- A) Average acceleration
- B) Average power
- C) Average velocity
- D) Retarding force

A       B       C       D

- 37)** If the slope of d-t graph is increasing then
- A) Velocity is increasing
  - B) Velocity is decreasing
  - C) Acceleration is said to be +ve
  - D) Both "A" & "C"

A       B       C       D

- 38)** A car covers  $\frac{2}{3}$  distance with  $60 \text{ km h}^{-1}$  and  $\frac{1}{3}$  distance with  $20 \text{ km h}^{-1}$ . The average speed of car is:
- A)  $36 \text{ km h}^{-1}$
  - B)  $56 \text{ km h}^{-1}$
  - C)  $46 \text{ km h}^{-1}$
  - D)  $66 \text{ km h}^{-1}$

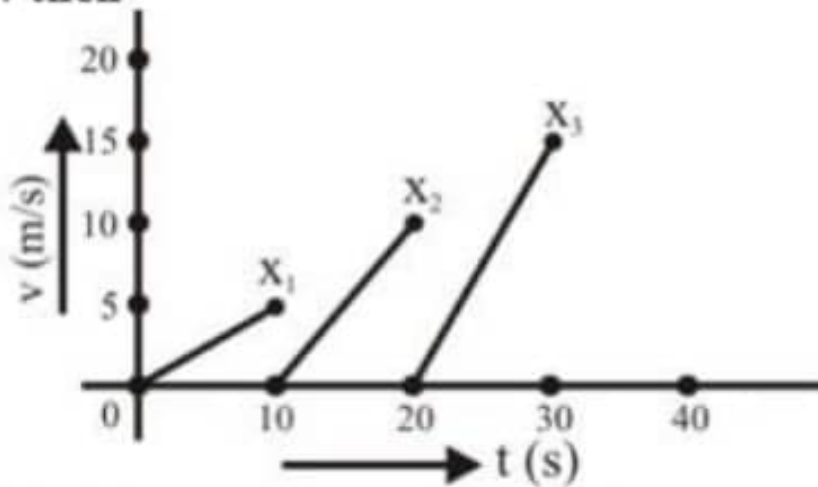
A       B       C       D

- 39)** Two bodies are thrown vertically upwards with their initial speeds in the ratio 2:3 then the ratio of the maximum heights attained by them is:
- A) 2:3
  - B) 1:1
  - C) 4:9
  - D)  $\sqrt{(2)} : \sqrt{(3)}$

A       B       C       D

40)

The  $x_1$ ,  $x_2$  and  $x_3$  are distances travelled by the three different particles whose velocity-time graphs are shown below then



A)  $x_1 > x_2 > x_3$

C)  $x_1 = x_2 = x_3$

B)  $x_1 < x_2 < x_3$

D)  $x_1 = x_2 > x_3$



A



B



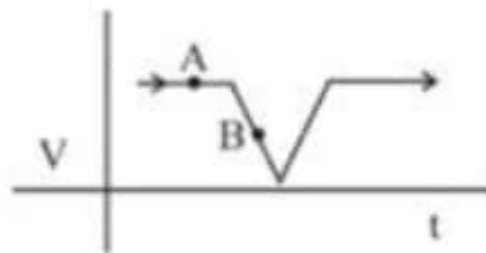
C



D

41)

The velocity time graph of a body is shown. It implies that at B:



A)  $\vec{F}$  is zero

C)  $\vec{F}$  is towards motion

B)  $\vec{F}$  opposes motion

D) None of these



A



B



C



D

