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Distance and displacement worksheets with answers

(v) this page we have moving worksheet for class 9 physics. I hope you like it and don't fret about pleasure, social part and comment at the end of the page. Question 1 A particle is moving a tilted plane. Its speed changes from 15 m/s to 10 m/s in two seconds. What's your acceleration? Answer u = 15 m/s, v = 10 m/s, t = 2 sec, a = ? $a = \frac{v - u}{t} = \frac{10 - 15}{2} = -2.5 \text{ m/s}^2$ Question 2 The speed changes from 45 m/s to 60 m/s in three seconds. What's your acceleration? Answer u = 45 m/s, v = 60 m/s, t = 3 sec, a = ? $a = \frac{v - u}{t} = \frac{60 - 45}{3} = 5 \text{ m/s}^2$ Question 3 A body covered a distance of 2 metre along a semicircular path. Calculate the size of the body's shift and the relationship between the distance from the displacement? Answer Let the range of semicircular path $s = \pi r$ $r = \frac{2}{\pi}$ $\therefore s = \pi \times \frac{2}{\pi} = 2 \text{ m}$ \therefore shift = 2 m \therefore displacement = 2 m \therefore distance = $\pi r = \pi \times \frac{2}{\pi} = 2 \text{ m}$ Question 4 A particle moving at an initial speed of 5 m/s is subject to a uniform acceleration of 2.5 m/s² for 10 s. What is the final speed of the particle? Answer u = 5 m/s, a = 2.5 m/s², t = 10 s, v = ? $v = u + at = 5 + 2.5 \times 10 = 30 \text{ m/s}$ Question 5 A car starts from rest and accelerates uniformly to a speed of 16.66 m/s, a = -0.5 m/s², v = 0, s = ? $s = \frac{v^2 - u^2}{2a} = \frac{16.66^2 - 0^2}{2 \times (-0.5)} = -277.55 \text{ m}$ Question 6 A truck covers 30 km at a uniform speed of 30 km/h. What should be its speed for the next 90 km if the average speed for the whole trip is 90 km/h? Response Total travel distance = 30 + 90 = 120 km Average speed = 60 km/h \therefore So total time taken = $\frac{120}{60} = 2 \text{ hours}$ now when traveling with 30 km/h for 30 km. Time taken = 1 hour in so time left = 2 - 1 = 1 hour. Then the truck must take 90 km in 1 hour to have an average speed of 60 km/h, so the speed should be = $\frac{90}{1} = 90 \text{ km/h}$ for the next 90 km Question 7 A stone is thrown vertically towards the high direction with a speed of 10 m/s. If the acceleration of the stone during its movement is 10 m/s² in the downward direction, what will be the height reached by the stone and how long will it take to reach there? Answer u = 10 m/s, v = 0, a = -10 m/s², s = ? $t = ?$ $v^2 = u^2 + 2as$ $0 = 10^2 + 2 \times (-10) \times s$ $s = \frac{10^2}{2 \times 10} = 5 \text{ m}$ $v = u + at$ $0 = 10 + (-10)t$ $t = \frac{10}{10} = 1 \text{ s}$ Question 8 A person goes to the market, shops and returns to a constant slower speed. Do you draw time travel charts and speed of the person? Answer The moving time chart is indicated as below the speed time chart is provided as under the demand 9 John runs for 10 minutes, at a uniform speed 9 h. At what speed should you run for the next 20 minutes, so that the average speed reaches 12 km/hour? Answer Total Time = 10 + 20 = 30 min. Total distance = 90 km. Let the speed for the next 20 min be x km/h. $\therefore \frac{90}{30} = \frac{90 + 20x}{30}$ $\therefore 90 = 90 + 20x$ $\therefore x = \frac{90 - 90}{20} = 0 \text{ km/h}$ Question 9 A car starts from rest and accelerates uniformly to a speed of 16.66 m/s, a = -0.5 m/s², v = 0, s = ? $s = \frac{v^2 - u^2}{2a} = \frac{16.66^2 - 0^2}{2 \times (-0.5)} = -277.55 \text{ m}$ Question 10 A car starts from rest and accelerates uniformly to a speed of 16.66 m/s, a = -0.5 m/s², v = 0, s = ? $s = \frac{v^2 - u^2}{2a} = \frac{16.66^2 - 0^2}{2 \times (-0.5)} = -277.55 \text{ m}$ Question 11 An object moves along a circular path of 14 cm diameter at constant speed. If it takes 2 min. to move from one point on the trail to the diametrically opposite point. Find (a) The distance covered by the object (b) The velocity (c) The displacement (d) average velocity. Answer Distance = $\pi r = \pi \times \frac{14}{2} = 21.99 \text{ cm}$ Velocity = $\frac{\text{Distance}}{\text{Time}} = \frac{21.99}{2} = 10.995 \text{ cm/s}$ Displacement = diameter = 14 cm Average velocity = $\frac{\text{displacement}}{\text{time}} = \frac{14}{2} = 7 \text{ cm/s}$ Question 12 A particle with a velocity of 2 m/s at t=0 moves along a straight line with an acceleration constant of 0.2 m/s². Can you find the displacement of the particle in 10? Do you answer this kind of m, a=0.2m/s², t=10 s, s=? Translation: A particle is pushed along a horizontal surface in such a way that it starts at a velocity of 12m/s. Its velocity decreases at a steady rate of 0.5m/s². (a) Find the time it will take to rest. (b) Find the distance it will travel before it comes to rest. (c) Find the time it takes to travel the first 10m. Answer (a) $v = u + at$ $0 = 12 + (-0.5)t$ $t = \frac{12}{0.5} = 24 \text{ s}$ (b) $s = ut + \frac{1}{2}at^2 = 12 \times 24 + \frac{1}{2} \times (-0.5) \times 24^2 = 144 - 144 = 0 \text{ m}$ (c) $s = ut + \frac{1}{2}at^2 = 12 \times 10 + \frac{1}{2} \times (-0.5) \times 10^2 = 120 - 25 = 95 \text{ m}$ Question 13 A cyclist who moves on a circular track of 50 m radius completes a revolution in 4 minutes. What is its (a) average speed (b) average speed in a complete revolution? Answer Distance = $2\pi r = 2 \times \pi \times 50 = 314 \text{ m}$ Average speed = $\frac{\text{distance}}{\text{time}} = \frac{314}{4} = 78.5 \text{ m/s}$ Displacement = Average speed = 0 link to this page by copying the following text Worksheet on Movement for Class 9 Physics Read also Class 9 Maths Class 9 Science In order to continue your journey over our site, please confirm your your identity as a human being. Thank you so much for your cooperation. 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