Worksheet: Motion in a Straight Line

NIOS · Class 11 · Physics · 8 questions · 21 marks

Name: _____	Date: _____	Score: _____ / 21

Q1. Can an object have zero velocity but non-zero acceleration? Give an example. *[2 marks]*

Q2. On a velocity-time graph, what do the slope and the area under the curve each represent, and why is the area a displacement rather than a distance? *[2 marks]*

Q3. A particle moves with v = 10 + 2t m/s. Find the displacement from t = 0 to t = 5 s. *[3 marks]*

Q4. A car moving at 72 km/h stops in 50 m. Find the deceleration. *[2 marks]*

Q5. Two 100 m trains move at 54 km/h and 72 km/h in opposite directions on parallel tracks. Find the crossing time. *[3 marks]*

Q6. A stone is dropped from an 80 m tower. Find the time to reach the ground and the impact speed (g = 10 m/s^2). *[3 marks]*

Q7. A car's stopping distance at 15 m/s is 20 m. Assuming the same braking deceleration, estimate its stopping distance at 30 m/s, and explain the reasoning. *[3 marks]*

Q8. A body falls from rest. Show that the distances it covers in successive equal intervals of time are in the ratio 1 : 3 : 5 : 7. *[3 marks]*