Question Paper

Topic 1: Mechanics

Q1. A car is traveling at a constant speed of 60 km/hr. If it covers a distance of 120 km, how long will it take to reach its destination?
Answer: 2 hours
Explanation: Time = Distance / Speed = 120 km / 60 km/hr = 2 hours

Q2. A ball is thrown vertically upwards with an initial velocity of 20 m/s. Calculate the maximum height the ball reaches before falling back down. (Assume acceleration due to gravity as 10 m/s^2)
Answer: 20 meters
Explanation: Using the kinematic equation: final velocity^2 = initial velocity^2 + 2 * acceleration * displacement. At the maximum height, final velocity is 0. So, 0 = (20 m/s)^2 - 2 * 10 m/s^2 * displacement. Solving for displacement, we get displacement = 20 meters.