

Integration and Motion

1. You are driving along a highway at a steady 60 mph (88 ft/sec) when you see an accident ahead and slam on the brakes. What constant deceleration is required to stop your car in 242 ft?
2. When astronaut David Scott dropped a hammer and a feather on the moon to demonstrate that in a vacuum, all bodies fall with the same constant acceleration, he dropped them from about 4 ft above the ground. On the moon, the acceleration due to gravity is -5.2 ft/sec^2 . How long did the hammer and the feather take to fall the 4 ft? How long would it take on earth (in a vacuum)?