

# Force and initial velocity essay sample



**ASSIGN  
BUSTER**

1. A car speeds up from 40 km/h to 55 km/h to overtake a truck. If this requires 15 s, what is the (a) acceleration and (b) distance traveled by the car?
2. Albert is riding his scooter at a velocity of 80 km/h when he sees an old woman crossing the road 45 m away. He immediately steps hard on the brakes to get the maximum acceleration of  $7.5 \text{ m/s}^2$ . How far will he go before stopping? Will he hit the old woman?
3. The time a male bungee jumper is freely falling is 1.5 seconds (a) What is the velocity of the jumper at the end of 1.5 s?  
(b) How high did he fall?
4. A juggler tosses three balls alternately vertically upward. Each ball has an initial velocity of 5 m/s. (a) How high does each ball rise? (b) How long will it take each ball to be caught by the juggler at the same level at they were released? (c) What is the velocity of each ball after 1 s?
5. A long jumper leaves the ground at an angle of 30 degrees to the horizontal and at a speed of 6 m/s (a) How high did he jump? (b) How long did it take before he landed on the ground? (c) How far did he jump?

#### SELF CHECK ACTIVITY ON LAWS OF MOTION

1. A 3.5 kg papaya is pushed across a table. If the acceleration of the papaya is  $2.2 \text{ m/s}^2$  to the left, what is the force exerted on the papaya?

2. A constant net force of 200 N is exerted to accelerate cart from rest to a velocity of 40 m/s in 10 s. What is the mass of the cart.