

1. A rocket at rest with a mass of  $9.5 \times 10^3$  kg is acted on by an average net force of  $1.5 \times 10^5$  N upwards for 15 s. What is the final velocity of the rocket?

2. A 26.3 kg object is traveling at 21.0 m/s north. What average net force is required to bring this object to a stop in 2.60 s?

3. An average force of 31.6 N south is used to accelerate a 15.0 kg object uniformly from rest to 10.0 m/s. What is the change in momentum?

4. An average net force of 25.0 N acts north on an object for  $7.20 \times 10^{-1}$  s. What is the change in momentum of the object?

5. A 5.00 kg object accelerates uniformly from rest to a velocity of 15.0 m/s east. What is the change in momentum on the object?

6. An average net force caused an 11.0 kg object to accelerate uniformly from rest. If this object travels 26.3 m west in 3.20 s, what is the change in momentum of the object?

7. A 1.30 kg object is dropped from a height of 6.5 m. How far did the object fall when its momentum is 6.0 kgm/s?

8. An average net force of 16.0 N acts on an object for  $2.00 \times 10^{-1}$  s causing it to accelerate from rest to 3.50 m/s. What is the mass of the object?

9. A 0.500 kg object is thrown vertically upward with an average applied force of 8.20 N by a student. The force is applied through a displacement of 1.50 m.

a. What is the average net force acting on the object?

b. What is the velocity of the object when it leaves the student's hand? (Assume initial velocity is zero)