Newton’s Law Problems

For all these problems use the assumption that the acceleration of gravity (g) is 10m/sec2.

1. Chuck applies a 500 N force to accelerate a 50 Newton box at 3.0 m/sec2. Find:

Force of gravity (weight) Normal Force:

Applied force: Friction force:

Mass: Net force:

Acceleration:

1. A 100 Newton rightward force is applied to a 20 kg object to accelerate it to the right. The object encounters a friction force of 40 N. Find:

Force of gravity (weight) Normal force:

Applied force: Friction force:

Mass: Net force:

Acceleration:

1. A 50 kg skydiver encounters 300 N of air resistance. Find:

Force of gravity (weight): Air resistance:

Mass: Net force:

Acceleration:

1. A 1000 kg upward moving freight elevator nears its destination and accelerates downward with an acceleration of 1.8 m/sec2.

Force of gravity (weight): Tension force on the cable:

Mass of the elevator: Net force:

Acceleration:

1. A 2600 kg car is moving at 30 m/sec when it slams on the brakes and skids to a stop with a leftward acceleration of 6 m/sec2. Find:

Force of gravity (weight): Normal force:

Friction force: Mass:

Net force: Acceleration:

1. A 4.0 kg pail is attached to a cable and raised upward with a constant speed of 1.5 m/sec. Find:

Force of Gravity(weight): Tension Force:

Mass: Net force:

Acceleration:

1. A 800 kg rightward moving car encounters 4400 Newtons of resistive force as it skids to a stop. Find:

Force of Gravity(weight): Normal Force:

Friction Force: Mass:

Net Force: Acceleration:

1. The cable of a freight elevator applies a 3000 N force to accelerate a 240 kg elevator upward. Find:

Force of Gravity (weight): Tension force:

Mass: Net force:

Acceleration: