**Newton’s Second Law**

Definition:

Equation:

Define Weight:

Your weight on Earth is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between you and Earth.

Contrast Gravity and Weight

Moon’s gravity is 1/6 of the Earth’s

* If you weigh 420 Newtons on earth, what will you weigh on the Moon?
* If your mass is 41.5Kg on Earth what is your mass on the Moon?

*Try the following practice problems:*

1. *What net force is required to accelerate a car at a rate of 2 m/s2 if the car has a mass of 3,000 kg?*

*F=\_\_\_\_\_\_\_*

*m=\_\_\_\_\_\_*

*a= \_\_\_\_\_\_\_\_\_\_*

1. *A 10 kg bowling ball would require what force to accelerate down an alleyway at a rate of 3 m/s2?*

*F=\_\_\_\_\_\_\_*

*m=\_\_\_\_\_\_*

*a= \_\_\_\_\_\_\_\_\_\_*

1. *Sally has a car that accelerates at 5 m/s2. The car has a mass of 1000 kg, how much force does the car produce?*

*F=\_\_\_\_\_\_\_*

*m=\_\_\_\_\_\_*

*a= \_\_\_\_\_\_\_\_\_\_*

1. *What is the mass of a falling rock if it produces a force of 147 N?*

*F=\_\_\_\_\_\_\_*

*m=\_\_\_\_\_\_*

*a= \_\_\_\_\_\_\_\_\_\_*

1. *What is the mass of a truck if it produces a force of 14,000 N while accelerating at a rate of 5 m/s2?*

*F=\_\_\_\_\_\_\_*

*m=\_\_\_\_\_\_*

*a= \_\_\_\_\_\_\_\_\_\_*