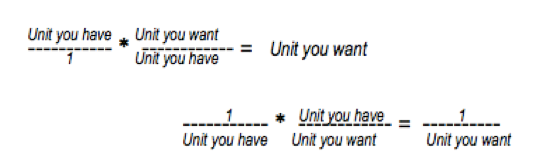
**Momentum practice with Unit conversions**



1. What is the magnitude of the linear momentum of a 7.30 kg bowling ball going down the alley with a speed of 250.0 cm/s?
   1. First: The velocity must be changed to meters per second. *This one is done for you.*

Conversion factor: 100 cm = 1 m

V = 250.0 cm/s = **\_\_\_\_\_\_\_ m/s**

* 1. Second: Calculate the momentum (now that you have mass in kg and velocity in m/s).

1. Find the linear momentum of a 56.8 kg ball that is moving at 1600 km/hour.
   1. First: The velocity must be changed to meters per second. You can do this one.

Conversion factors: 1000 m = 1 km and 1 hour = 3600 seconds

* 1. Second: Calculate the momentum

1. An aircraft is flying due east at 470 miles per hour. If the aircraft’s weight is 836,000 pounds, what is its momentum?
   1. First: The velocity must be changed to meters per second.

Conversion factors: 1 mile = 1610 meters 1 hour = 3600 seconds

* 1. Second: Find the mass using the weight. Conversion factors:

1 pound = 4.45 N 1 N = 0.102 kg

* 1. Third: Calculate momentum now that you have mass in kg and velocity in m/s.

1. What is the mass of ball if it is moving at 4.7 feet/second and its momentum is 81 kg m/s?
   1. First: The velocity must be converted to meters/second.

Conversion factor: 3.3 feet = 1 meter

* 1. Second: Solve for the mass using *p = mv*.

1. The magnitude of the instantaneous momentum of a runner who is moving at 20.0 km/h is 479 kg-m/s. What is the runner’s mass?
   1. First: The velocity must be converted to meters/second.

Conversion factors: \_\_\_ km = \_\_\_\_\_\_\_\_ meters \_\_\_\_ hours = \_\_\_\_\_\_\_ seconds

* 1. Second: Solve for the mass using *p = mv*.