W = weight
m = mass
F = force
A = a = acceleration
p = pressure

Unit 2: Newton's Laws of Physics-MATH REVIEW PROBLEMS

Equations: w = m X g   F = m X a   A = F/m   m = F/a   p = F/area

Constants: g = 10 N/kg $10 N = 1 kg = 2.2 lbs$

PROBLEM: *Complete and SHOW WORK on all problems.*

1. Calculate the weight of a person with a mass of 50 kg:

2. Calculate in newtons the weight of a 2000 kg elephant:

3. An apple weighs 1 N. What is its mass in kg? What is its weight in lbs?

4. If forces of 10 N and 15 N act on an object in the same direction. What is the net force on the object?

5. If forces of 10 N and 15 N act in opposite directions on an object, what is the net force?

6. Calculate the horizontal force that must be applied to produce an acceleration of 1.8 m/s^2 for a 1.2 kg puck on a horizontal friction-free air table:

7. What is the acceleration of a 747-Jumbo Jet with a mass of 30,000 kg in takeoff when the thrust (force) for each of its four engines is 30,000 N? (x4)

8. Calculate the acceleration of a 5 kg box on a table if you push with a horizontal force of 15 N. The force of friction is present and is 5 N.

9. Find the mass of an object that has a force of 30 N applied to it and is accelerating at 7 m/s^2:

10. Calculate the pressure exerted by water if the force applied is 25 N and the area of the container is 6 m^2: