$$F = \frac{G\,M_1\,M_2}{R^2}$$
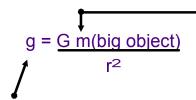
What are these variables?

F = force in newtons

m1, m2 = mass in kg

r = distance in meters

G = a constant 6.67 E -11

When the problem mentions the word force
or weight, you will be using this equation!!!!

Another formula often used is

$$g = \frac{G\ m(\text{big object})}{r^2}$$

When the problem mentions the
word gravity, you should almost
always use this equation!!!!

Make sure the mass used in this
equation is the largest mass mentioned
in the problem. Usually, this is the mass
of the planet

In either formula, you must be careful with the distance. Anytime
the problem involves a planet, you must add the radius to the planet
to the distance you are above the planet!

r = this distance + this distance (be sure you are in meters!)