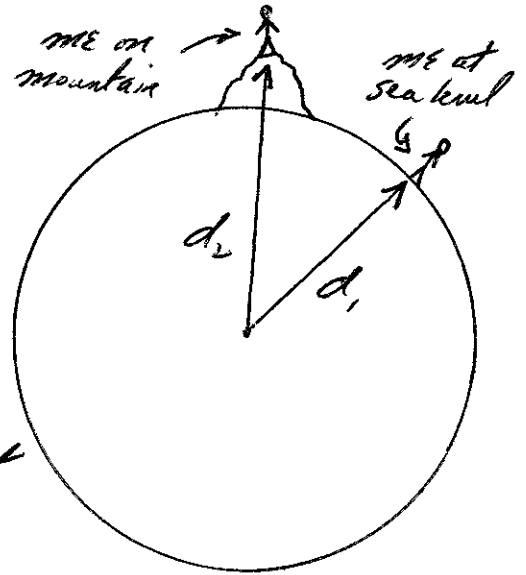


1. NEED LAW of UNIVERSAL GRAVITATION

$$F = G \frac{mM}{d^2}$$

this gives the force of gravity F between two masses m and M , which are separated by distance d . " G " is a constant of nature.



2. WEIGHT: The force of gravity between me and the Earth is called my WEIGHT, where the distance is between me and the center of the Earth.

3. DEFINITIONS:
 m = mass of me
 M = mass of Earth
 d_1 = distance between center of Earth and me at sea level
 = radius of Earth = 3,963 miles (6,378 km)
 d_2 = distance between center of Earth and me on top of mountain
 = radius of Earth + height of mountain
 = $(3,963 + 210) = 4,173$ miles or $(6,378 + 340) = 6,718$ km

4. CALCULATING MY WEIGHT AT SEA LEVEL & ON MOUNTAIN

$$\text{Weight at Sea Level} = \frac{GmM}{d_1^2}$$

$$\text{Weight on Mountain} = \frac{GmM}{d_2^2}$$

5. CALCULATING RATIO of MY WEIGHT ON MOUNTAIN TO WEIGHT SEA LEVEL

$$\frac{\text{Weight on Mountain}}{\text{Weight Sea Level}} = \frac{\frac{GmM}{d_2^2}}{\frac{GmM}{d_1^2}} = \frac{d_1^2}{d_2^2} = \frac{3,963^2}{4,173^2} = .90$$

90%!