Finding the Formula for "g"

$W = m_{object}g$

$F = \frac{Gm_{object}m_{planet}}{r^2}$

$W = F$

$m_{object}g = \frac{Gm_{object}m_{planet}}{r^2}$

$g = \frac{GM_p}{r^2}$

What is the gravitational acceleration 1000km above the Earth's surface? $g = 7.33 m/s^2$

What is the acceleration of gravity on the surface of the Moon? $g = 1.62 m/s^2$

Suppose a new planet is discovered that has a radius 3 times that of the Earth and a mass 5 times that of the Earth. What is the acceleration of gravity on that planet's surface? $g = 5.45 m/s^2$

How far from the Earth's surface do you have to go to experience 0.5*g*? $r = 2.64 \times 10^6 m$

What is the acceleration of the Moon towards the Earth? Earth towards the Moon? $g_{m \to E} = 2.69 \times 10^{-3} m/s^2$ | $g_{E \to m} = 3.33 \times 10^{-5} m/s^2$

A cannon is fired from the surface of Mars. The speed is 25 m/s at an angle of 30^o to the surface. What is the maximum height of the cannon ball? How far from the cannon does the ball land? (Mass of Mars = 6.421×10^{23}kg, Radius = 3.39×10^6 m) $y_{max} = 21 m$ $x = 148 m$

Text Pg. 595 (read the reflection).
#'s 22 - 28, 30 - 33.

Suppose a planet is discovered that is 2.5 times as massive as the Earth. What would its radius have to be for its gravitational acceleration to be the same as Earth's?

Calculate the average densities of the Earth and the above planet.

A planet is found to be 3.75 times the radius of Earth. For it to have g = 9.81 m/s^2, what must its mass be relative to the Earth's?