REMEMBER

Fg

1. DO YOUR THREE STEPS
2. SHOW UNITS
3. USE THE TRIANGLE IF YOU NEED TO

ag

m

Numbers to use:

|  |  |
| --- | --- |
| Planet | Acceleration due to gravity (m/s2) |
| Earth | 9.8 |
| Moon | 1.6 |
| Mars | 3.8 |
| Jupiter | 25.9 |

1. An object with a mass of 20 kg is on Mars. What is the weight of the object?
2. The same object is taken to Jupiter. What is its weight?
3. An object weight 500N on Earth, what is its mass?
4. An object weighs 100N on the moon, what is its mass?
5. Which has a greater mass? An object that weighs 400N on Earth or an object that weighs 300N on the moon? Show work for mass of both objects then compare answers.
6. An object weighs 50N and has a mass of 5kg. What is the acceleration due to gravity of the planet the object is on?
7. An object weighs 150N and has a mass of 15.3 Kg. What planet is the object on?
8. An object with a mass of 20 kg is on Mars. What is the weight of the object?

1. Fg = m x ag

2. Fg = 20kg x 3.8 m/s2

3. Fg = 76 N

1. The same object is taken to Jupiter. What is its weight?

1. Fg = m x ag

 2. Fg = 20kg x 25.9 m/s2

3. Fg = 518 N

1. An object weight 500N on Earth, what is its mass?
2. m = $\frac{ Fg}{ag}$
3. m= $\frac{500N}{9.8m/s2}$
4. m = 51 kg
5. An object weighs 100N on the moon, what is its mass?

1. m = $\frac{ Fg}{ag}$

1. m= $\frac{100N}{1.6m/s2}$
2. m = 62.5 kg
3. Which has a greater mass? An object that weighs 400N on Earth or an object that weighs 300N on the moon? Show work for mass of both objects then compare answers.

Object 1

1. m = $\frac{ Fg}{ag}$
2. m= $\frac{400N}{9.8m/s2}$
3. m = 40.8 kg

Object 2 on next page

 Object 2

1. m = $\frac{ Fg}{ag}$
2. m= $\frac{300N}{1.6m/s2}$
3. m = 187.5 kg

187.5 kg > 40.8 kg So object 2 has a greater mass

1. An object weighs 50N and has a mass of 5kg. What is the acceleration due to gravity of the planet the object is on?
2. ag = $\frac{ Fg}{m}$
3. ag = $\frac{ 50}{5}$
4. ag = 10 m/s2
5. An object weighs 150N and has a mass of 15.3 Kg. What planet is the object on?

Each planet has its own ag, so we need to find ag to identify the planet.

1. ag = $\frac{ Fg}{m}$
2. ag = $\frac{ 150}{15.3}$
3. ag = 9.8 m/s2

ag Earth = 9.8 m/s2

The object is on Earth.