

Physical Science
Weight-Mass Calculations

Directions: Read and solve the following problems. Show your calculation using the four-box method.

1. What is the force on a 1-kg ball that is falling freely due to the pull of gravity? (Hint: Remember the acceleration of all objects due to Earth's gravity.)
2. A man has a mass of 75 kg. The acceleration due to gravity on the moon is 1.67 m/sec^2 . Calculate the man's weight (or force) on the moon.
3. A barbell weighs 850 N on Earth (remember the acceleration due to gravity on Earth). What is its mass in kg?
4. What is the weight of a 65 kg object?
5. What is the mass of an object that weighs 500 N?
6. If you drop a 20 kg object, what is its acceleration? What is its weight?
7. A force of 230 N was applied to a mass of 45 kg. What is the acceleration?
8. What force is needed to accelerate a 4.8 kg object at 25 m/s^2 ?
9. What is the mass of an object that weighs 120 N?
10. If a force of 35N is applied to a 23 kg object, what would its acceleration be?
11. What is the acceleration on a 94-kg object if 564 N are required to move it?