

Worksheet - Newton's Law of Universal Gravitation

1) Two students are sitting 1.50 m apart. One student has a mass of 70.0 kg and the other has a mass of 52.0 kg. What is the gravitational force between them?

2) Calculate the gravitational force on a 6.50×10^2 kg that is 4.15×10^6 m above the surface of the Earth?

3) What gravitational force does the moon produce on the Earth if their centers are 3.88×10^8 m apart and the moon has a mass of 7.34×10^{22} kg?

4) The gravitational force between two objects that are 2.1×10^{-1} m apart is 3.2×10^{-6} N. If the mass of one object is 55 kg what is the mass of the other object?

5) If the gravitational force between objects of equal mass is 2.30×10^{-8} N when the objects are 10.0 m apart, what is the mass of each object?

6) If two objects, each with a mass of 2.0×10^2 kg, produce a gravitational force between them of 3.7×10^{-6} N. What is the distance between them?