**Newton's law of universal gravitation**

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| Every [point mass](http://en.wikipedia.org/wiki/Point_mass) attracts every single other point mass by a [force](http://en.wikipedia.org/wiki/Force) pointing along the [line](http://en.wikipedia.org/wiki/Line_(mathematics)) Intersecting both points. The force is [proportional](http://en.wikipedia.org/wiki/Proportionality_(mathematics)) to the [product](http://en.wikipedia.org/wiki/Product_(mathematics)) of the two [masses](http://en.wikipedia.org/wiki/Mass) and [inversely proportional](http://en.wikipedia.org/wiki/Proportionality_(mathematics)) to the [square](http://en.wikipedia.org/wiki/Square_(algebra)) of the distance between them: | |
| = G \frac{m_1 m_2}{r^2}\ ,  where:   * *F* is the force between the masses, * *G* is the [gravitational constant](http://en.wikipedia.org/wiki/Gravitational_constant) (6.673×10−11 N·(m/kg)2), * *m*1 is the first mass, * *m*2 is the second mass, and * *r* is the distance between the centers of the masses.   **Using Matlab Program**   1. Create a script M-file and name it Gravity. 2. Define a variable G and give it the value 6.673×10−11 3. Name the first object mass as m1 and give it the value 50. 4. Name the second object mass as m2 and give it the value 34. 5. Name the distance between the two objects r give it the value 10. 6. Write a proper formula to calculate the Force F 7. Execute the script to find the value of F. 8. For m1=600,m2=478 and r=177 , what is the value of F ? 9. Write a proper command in your script ,Gravity, so it can be easy to understand. | [iagram of two masses attracting one another](http://en.wikipedia.org/wiki/File:NewtonsLawOfUniversalGravitation.svg) |