Electric Forces vs Gravitational Forces Fill in Notes 3/30/2020

5MinutePhysics Video
[Electric and Gravitational Forces](https://www.youtube.com/watch?v=TRIrmKChySo)

1. They are both \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_forces.
2. Gravitational attraction: the Earth \_\_\_\_\_\_\_\_\_\_\_ on the Moon, and the Moon\_\_\_\_\_\_\_\_\_\_\_\_\_ on the Earth.
3. Electric forces: Can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Gravitational force can only be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Electrical force is significantly \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than gravitational force.
6. Gravitational force is based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. Electrical force is based on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

[Mikula’s video on Electric force and Gravitational Force formulas](https://www.youtube.com/watch?v=GtzIbtGv4BU)

**Electric Force formula:**



Fe = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (N)
kc = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (9x109 Nm2/C2)
q1 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the first particle (C)
q2 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of second particle (C)
d = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between 2 particles (m)

**Gravitational Force formula:**



F = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (N)
G = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (6.67x10-11 Nm2/kg2)
m1 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of object 1 (kg)
m2 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of object 2 (kg)
d = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between masses (m)

Coulomb’s Law Example:

A negative charge of -2.0 x 10-4 C and a positive charge of 8.0 x 10-4 C are separated by 0.30m. What is the force between the 2 charges?



(9.0 x 109) (-2.0 x10-4) (8.0 x 10-4)

 0.302

F = -16,000 N or - 1.6 x 104 N

Now you try one:

A negative charge of -6.0 x 10-6 interacts with a particle with a positive charge of 3.0 x 10-6. What is the force acting on the charges if they are 0.05 m away?



Answer is on completed notes posted on blog 😊