

# 22 Lecture - PHY101

## Important Subjective

**What is the formula for gravitational force between two objects?**

**Answer:** The formula for gravitational force between two objects is  $F = Gm_1m_2/r^2$ , where  $F$  is the gravitational force,  $m_1$  and  $m_2$  are the masses of the two objects,  $r$  is the distance between them, and  $G$  is the gravitational constant.

**What is the difference between gravitational force and weight?**

**Answer:** Gravitational force is the force of attraction between any two objects with mass, while weight is the force experienced by an object due to the gravitational pull of a larger object such as a planet or star.

**How is planetary motion affected by gravitation?**

**Answer:** Gravitation is responsible for keeping planets in orbit around their stars. The gravitational force acting on the planets causes them to follow a curved path around the star.

**What is gravitational lensing?**

**Answer:** Gravitational lensing is the bending of light by the gravitational pull of a massive object such as a galaxy cluster.

**What is the theory of general relativity?**

**Answer:** The theory of general relativity, proposed by Albert Einstein, suggests that the force of gravitation is not actually a force, but a curvature of space-time caused by the presence of matter and energy.

**What is the significance of the 1919 solar eclipse?**

**Answer:** The 1919 solar eclipse provided the first experimental confirmation of the theory of general relativity, as observations showed that the sun's gravitational field was bending the light from distant stars, just as Einstein had predicted.

**What is a black hole?**

**Answer:** A black hole is an object with such a strong gravitational field that nothing, not even light, can escape its pull.

**What is the challenge facing theoretical physicists in the study of gravitation?**

**Answer:** The challenge facing theoretical physicists is to reconcile the theory of general relativity with quantum mechanics, which describes the behavior of particles on a very small scale.

**How does gravitation affect the behavior of light?**

**Answer:** Gravitation can cause the bending of light around massive objects, which is known as gravitational lensing.

**What is the role of gravitation in the universe?**

**Answer:** Gravitation is a fundamental force that is responsible for many of the phenomena we observe in the universe, from the motion of planets to the behavior of light.