

Introduction, Newton's law of Gravitation

CLASS-IX

SUBJECT : PHYSICS
CHAPTER NUMBER: 10
CHAPTER NAME : GRAVITATION

CHANGING YOUR TOMORROW

Home Assignment

1. How does the force of gravitation between two objects change when the distance between them is reduced to half ?
2. Gravitational force acts on all objects in proportion to their masses. Why then, a heavy object does not fall faster than a light object?
3. The earth and the moon are attracted to each other by gravitational force. Does the earth attract the moon with a force that is greater or smaller or the same as the force with which the moon attracts the earth? Why?
4. What happens to the force between two objects, if (i) the mass of one object is doubled? (ii) the distance between the objects is doubled and tripled? (iii) the masses of both objects are doubled?

Home Assignment

Each question contains STATEMENT-1 (Assertion) and STATEMENT-2 (Reason). Each question has 5 choices (1), (2), (3), (4) and (5) out of which ONLY ONE is correct.

- (1) Statement-1 is True, Statement-2 is True; Statement-2 is a correct explanation for Statement-1.
- (2) Statement-1 is True, Statement-2 is True; Statement-2 is not a correct explanation for Statement-1.
- (3) Statement -1 is True, Statement-2 is False.
- (4) Statement -1 is False, Statement-2 is True.
- (5) Statement -1 is False, Statement-2 is False.

Statement 1 : When distance between two bodies is doubled and also mass of each body is also doubled, gravitational force between them remains the same.

Statement 2 : According to Newton's law of gravitation, force is directly proportional to mass of bodies and

Acceleration due to gravity ,Variation in 'g' due to various factors.

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1. The value of the universal gravitational constant –

- a. Changes with change of place
- b. Does not change from place to place
- c. Becomes more at night
- d. becomes more during day

2. The radius of earth is about 6400 km. and that of Mars is about 3200 km. The mass of earth is about 10 times the mass of Mars. An object weighs 200 N on earth's surface. Then its weight on the surface of Mars will be

- a. 8N
- b. 20 N
- c. 40 N
- d. 80 N

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Statement 1 : The value of acceleration due to gravity does not depend upon mass of the body.

Statement 2 : Acceleration due to gravity is a constant quantity.

THANKING YOU
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