GRAVITATIONAL MOTION AND UNIVERSAL GRAVITATION - PRACTICE TEST | NEW BRUNSWICK PHYSICS 121-122 · UNIT D · 25 QUESTIONS

Gravitational Motion and Universal Gravitation — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **The gravitational force between two masses is 100 newtons at distance d. At distance 2d the force in newtons is**

ANSWER _____

Understand It with Pulse | Flag a mistake

2 **The gravitational force is 144 newtons at distance d. At distance 2d the force in newtons is**

ANSWER _____

Understand It with Pulse | Flag a mistake

3 **The gravitational force is 81 newtons at distance d. At distance 3d the force in newtons is**

ANSWER _____

Understand It with Pulse | Flag a mistake

4 **Doubling one mass doubles the gravitational force. A force of 50 newtons becomes**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **Tripling one mass triples the force. A force of 30 newtons becomes**

ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A satellite orbit radius increases by a factor of 4. By Kepler third law the period increases by a factor of**

ANSWER _____

Understand It with Pulse | Flag a mistake

7 **A satellite orbit radius increases by a factor of 9. The period increases by a factor of**

ANSWER _____

Understand It with Pulse | Flag a mistake

8 **A planet has twice the mass of Earth and the same radius. Its surface gravity relative to Earth is**

ANSWER

Understand It with Pulse | Flag a mistake

9 **A planet has the same mass as Earth and twice the radius. Its surface gravity relative to Earth is**

ANSWER

Understand It with Pulse | Flag a mistake

10 **An object weighs 100 newtons on Earth. On a planet with surface gravity one quarter of Earth it weighs**

ANSWER

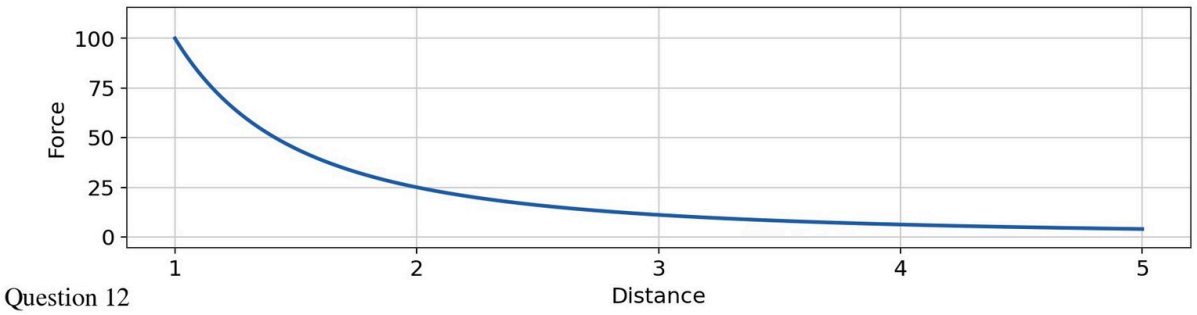
Understand It with Pulse | Flag a mistake

11 **Earth mass is about 6×10^{24} kilograms . Expressed as a multiple of 10^{24} the coefficient is**

ANSWER

Understand It with Pulse | Flag a mistake

12 **The graph shows force falling as distance² increases . At distance 2 the force shown is 25 . At distance 1 the force is**



Question 12

The graph shows force falling as distance^2 increases . At distance 2 the force shown is 25 . At distance 1 the force is

ANSWER

Understand It with Pulse | Flag a mistake

13 **Universal gravitation states every mass attracts every other mass with a force proportional to the**

A sum of the masses

B product of the masses

C difference of the masses

D ratio of the masses

Understand It with Pulse | Flag a mistake

14 **Gravitational force decreases with the square of the**

A mass

B distance

C time

D velocity

Understand It with Pulse | Flag a mistake

15 **The gravitational field strength at a point is the force per unit**

A charge

B distance

C mass

D time

Understand It with Pulse | Flag a mistake

16 **A field line diagram for gravity points**

- A away from the mass
- B in circles
- C upward only
- D toward the mass

Understand It with Pulse | Flag a mistake

17 **Kepler first law states planetary orbits are**

- A ellipses
- B circles
- C parabolas
- D straight lines

Understand It with Pulse | Flag a mistake

18 **Kepler second law states a planet sweeps out equal areas in equal**

A distances

B times

C speeds

D forces

Understand It with Pulse | Flag a mistake

19 **Kepler third law relates period² to radius**

A squared

B linear

C cubed

D inverse

Understand It with Pulse | Flag a mistake

20 **A satellite stays in orbit because gravity provides the**

A tangent force

B friction

C normal force

D centripetal force

Understand It with Pulse | Flag a mistake

21 **Weightlessness in orbit occurs because the astronaut and spacecraft fall at the**

A same rate

B same speed

C same height

D same mass

Understand It with Pulse | Flag a mistake

22 **The value of G is a universal**

A variable

B constant

C force

D field

Understand It with Pulse | Flag a mistake

23 **Tides are mainly caused by the Moon gravitational**

A force on oceans only

B orbit

C difference across Earth

D rotation

Understand It with Pulse | Flag a mistake

24 **Escape velocity depends on the mass and radius of the**

A object

B atmosphere

C orbit

D planet

Understand It with Pulse | Flag a mistake

25 **Gravitational potential energy increases as separation**

A increases

B decreases

C stays constant

D becomes zero

Understand It with Pulse | Flag a mistake

ANSWER KEY

1.	25	**10.**	25	**19.**	C
2.	36	**11.**	6	**20.**	D
3.	9	**12.**	100	**21.**	A
4.	100	**13.**	B	**22.**	B
5.	90	**14.**	B	**23.**	C
6.	8	**15.**	C	**24.**	D
7.	27	**16.**	D	**25.**	A
8.	2	**17.**	A		
9.	0.25	**18.**	B		

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