Dynamics — Practice Test

Ontario Physics, Grade 12, University Preparation (SPH4U) • 25 questions

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 **A net force of zero on an object means its velocity is**

- A Constant
- B Increasing
- C Decreasing
- D Zero always

Understand It with Pulse | Flag a mistake

2 **Newton second law states that net force equals mass times**

- A Energy
- B Momentum
- C Acceleration
- D Velocity

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3 **A net force of 24 newtons acts on a mass of 6 kilograms. The acceleration, in metres per second squared, is**

ANSWER _____

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4 **A mass of 10 kilograms accelerates at 3 metres per second squared. The net force, in newtons, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **Weight is the force of gravity on a mass and depends on**

- **A** Gravitational field strength
- **B** Density only
- **C** Volume only
- **D** Temperature

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6 **A mass of 5 kilograms in a gravitational field of 9.8 newtons per kilogram has weight, in newtons, of**



ANSWER _____

Understand It with Pulse | Flag a mistake

7 **Static friction acts to prevent motion between surfaces that are**

- **A** Moving rapidly
- **B** Lubricated fully
- **C** In free fall
- **D** At rest relative to each other

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8 **Kinetic friction is generally**

- **A** Less than maximum static friction
- **B** Zero always
- **C** Greater than maximum static friction
- **D** Equal to weight

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9 **The normal force on a horizontal surface equals the weight when there is no other**

- A Mass
- B Vertical force
- C Motion
- D Friction

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10 **A free body diagram shows all forces acting**

- A Between atoms
- B By the object
- C On the object
- D Inside the object only

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11 **Tension in a rope pulling a mass horizontally with no friction equals mass times**



A Distance

B Acceleration

C Weight

D Velocity

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12 **In an Atwood machine with unequal masses, the heavier mass**

- A Falls
- B Moves sideways
- C Rises
- D Stays still

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13 **Centripetal acceleration points toward the**

- A Outside of the circle
- B Centre of the circle
- C Direction of motion
- D Tangent line

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14 **An object moving at 10 metres per second in a circle of radius 20 metres has centripetal acceleration, in metres per second squared, of**

ANSWER

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15 **A car of mass 1000 kilograms moving at 20 metres per second in a circle of radius 50 metres needs centripetal force, in newtons, of**



ANSWER

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16 **The period of circular motion is the time for**

A A quarter revolution

B Half a revolution

C Two revolutions

D One full revolution

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17 **For an object in uniform circular motion, speed is constant but velocity changes because**

A Mass changes

B Direction changes

C Force is zero

D Radius changes

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18 **A banked curve allows a car to turn with less reliance on**



A Normal force

B Weight

C Friction

D Gravity

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19 **In a vertical circle, the apparent weight at the top is least because gravity acts**

A Upward

B Toward the centre and reduces normal force need

C Sideways

D Away from the centre

Understand It with Pulse | Flag a mistake

20 **A satellite in circular orbit is in a state of**



A Continuous free fall toward Earth

B Zero gravity in absolute terms

C Powered flight

D Rest

Understand It with Pulse | Flag a mistake

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

A Times

B Speeds

C Distances

D Masses

Understand It with Pulse | Flag a mistake

22 **The gravitational force between two masses doubles if one mass**

A Halves

B Is removed

C Triples

D Doubles

Understand It with Pulse | Flag a mistake

23 **The gravitational force falls to one quarter if the distance between masses**

- **A** Doubles
- **B** Quadruples
- **C** Halves
- **D** Triples

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24 **Two 2 kilogram masses 1 metre apart experience gravitational force using G 6.67×10^{-11} . The force $\times 10^{10}$, in newtons , is approximately**

ANSWER _____

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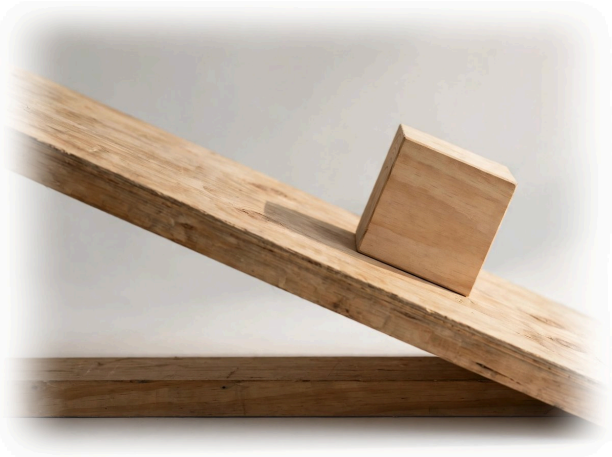
25 **An inclined plane reduces the force needed to lift an object by increasing the**



A Mass

B Friction

C Weight

D Distance over which force acts

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ANSWER KEY

1.	A	**10.**	C	**19.**	B
2.	C	**11.**	B	**20.**	A
3.	4	**12.**	A	**21.**	A
4.	30	**13.**	B	**22.**	D
5.	A	**14.**	5	**23.**	A
6.	49	**15.**	8000	**24.**	2.67
7.	D	**16.**	D	**25.**	D
8.	A	**17.**	B		
9.	B	**18.**	C		

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