NEW BRUNSWICK PHYSICS 121-122 · UNIT B · 25 QUESTIONS

Collisions and Conservation of Momentum — 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 **A bowling ball with a mass of 2 kilograms rolls at 5 metres per second. Its momentum in kilogram metres per second is**



ANSWER

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2 **A mass of 4 kilograms moves at 3 metres per second. Its momentum in kilogram metres per second is**

ANSWER

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3 **A mass of 5 kilograms moves at 6 metres per second. Its momentum in kilogram metres per second is**

ANSWER

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4 **A 2 kilogram object at 4 metres per second collides with a stationary object and sticks to it. The total mass is 4 kilograms. The final speed in metres per second is**

ANSWER

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5 **A 3 kilogram object at 6 metres per second collides and sticks to a 3 kilogram stationary object. The final speed in metres per second is**

ANSWER

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6 **A force of 10 newtons acts for 2 seconds. The impulse in newton seconds is**

ANSWER

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7 **A force of 20 newtons acts for 3 seconds. The impulse in newton seconds is**

ANSWER

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8 **An impulse of 40 newton seconds acts on a 4 kilogram mass. The change in velocity in metres per second is**

ANSWER

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9 **A 1000 kilogram car at 20 metres per second has momentum in kilogram metres per second of**

ANSWER

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10 **A 500 kilogram car at 10 metres per second has momentum in kilogram metres per second of**



ANSWER

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11 **A ball rebounds with momentum change of 12 kilogram metres per second over 0.2 seconds. The average force in newtons is**

ANSWER

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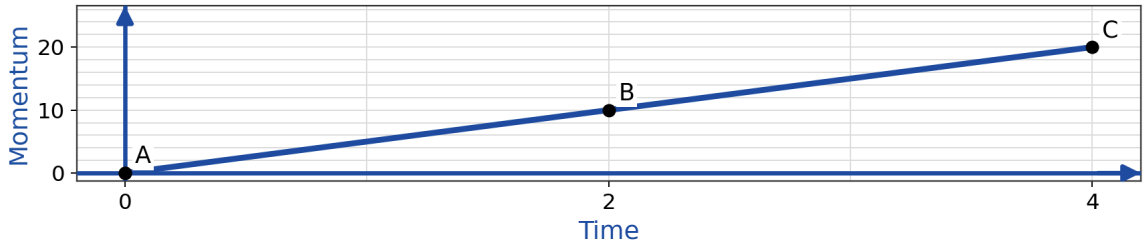
12 **The graph shows momentum rising from 0 to 20 in 4 seconds. The average rate of change in newtons is**



ANSWER

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13 **Momentum is conserved in a collision when no external force acts because total momentum is**

A zero

B constant

C increasing

D decreasing

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14 **Two billiard balls collide elastically. The collision conserves both momentum and**



A potential energy

B kinetic energy

C mass

D velocity

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15 **An inelastic collision conserves momentum but not**

A mass

B momentum

C kinetic energy

D charge

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16 **Impulse equals change in**

A energy

B mass

C velocity only

D momentum

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17 **A longer collision time for the same momentum change gives a**

A smaller force

B larger force

C same force

D zero force

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18 **Airbags reduce injury by increasing the collision**

A force

B time

C momentum

D velocity

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19 **A rocket moves forward by expelling gas backward, an example of conservation of**



A energy only

B mass only

C momentum

D charge

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20 **Momentum is a vector because it has**

- A mass
- B temperature
- C energy
- D direction

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21 **Two objects of equal mass collide elastically and exchange**

- A velocities
- B masses
- C charges
- D energies only

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22 **The unit of momentum is kilogram metres per**

A second squared

B second

C metre

D newton

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23 **In a perfectly inelastic collision the objects move together with a**

A zero velocity

B double velocity

C common velocity

D reversed velocity

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24

A bouncing ball experiences a larger impulse than a ball that sticks because its momentum



A doubles

B vanishes

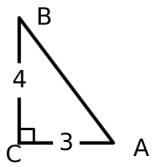
C stays

D reverses

Understand It with Pulse

Flag a mistake

25 **The diagram shows a triangle with legs 3 and 4. The resultant momentum magnitude for perpendicular momenta 3 and 4 is**



- **A** 5
- **B** 6
- **C** 7
- **D** 4

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ANSWER KEY

1. 10
2. 12
3. 30
4. 2
5. 3
6. 20
7. 60
8. 10
9. 20000
10. 5000
11. 60
12. 5
13. B
14. B
15. C
16. D
17. A
18. B
19. C
20. D
21. A
22. B
23. C
24. D
25. A

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