CALIFORNIA PHYSICS · UNIT 1 · 25 QUESTIONS

Kinematics and Dynamics — 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 car starts from rest and accelerates at 3 m/s² for 6 s. Its final speed is**



A 18 m/s

B 9 m/s

C 12 m/s

D 24 m/s

Understand It with Pulse | Flag a mistake

2 **An object moves with initial speed 8 m/s and acceleration 2 m/s² for 3 s. Its displacement is**

- **A** 15 m
- **B** 42 m
- **C** 24 m
- **D** 33 m

Understand It with Pulse | Flag a mistake

3 **An object starts from rest and accelerates at 6 m/s² over a distance of 12 m. Its final speed is**

- **A** 12 m/s
- **B** 6 m/s
- **C** 24 m/s
- **D** 3 m/s

Understand It with Pulse | Flag a mistake

4 **Use g = 10 m/s². An object dropped from rest falls for 4 s. The distance it falls is**

A 40 m

B 20 m

C 160 m

D 80 m

Understand It with Pulse | Flag a mistake

5 **Use g = 10 m/s². A red apple dropped from rest falls for 4 s. Its speed then, in meters per second, is _____**



ANSWER _____

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6 **A projectile has horizontal speed 15 m/s and stays in the air for 4 s. Its horizontal range is**

- A 30 m
- B 45 m
- C 90 m
- D 60 m

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7 **Use g = 10 m/s². A ball is thrown upward with vertical speed 30 m/s. The time to reach its highest point is**

- A 6 s
- B 2 s
- C 3 s
- D 5 s

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8 **A net force of 48 N acts on a 12 kg object. Its acceleration is**

- A 2 m/s²
- B 4 m/s²
- C 6 m/s²
- D 576 m/s²

Understand It with Pulse | Flag a mistake

9 **Use g = 10 m/s². The weight of a 25 kg object is**

- A 2.5 N
- B 25 N
- C 250 N
- D 2500 N

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10 **A wooden crate slides across a floor. The coefficient of kinetic friction is 0.5 and the normal force is 80 N. The kinetic friction force is**



A 16 N

B 160 N

C 130 N

D 40 N

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11 **Forces of 90 N east and 40 N west act on an object. The net force is**

- A 130 N west
- B 50 N east
- C 50 N west
- D 130 N east

Understand It with Pulse | Flag a mistake

12 **The property that measures an object resistance to a change in its motion is its**

- A weight
- B mass
- C volume
- D density

Understand It with Pulse | Flag a mistake

13 **When two objects interact, the forces they exert on each other are**

- A equal in size and opposite in direction
- B unrelated to each other
- C opposite in size and direction
- D equal in size and direction

Understand It with Pulse | Flag a mistake

14 **On a velocity time graph, the slope of the line gives the**

- A displacement
- B net force
- C acceleration
- D average speed

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15 **A car moves at constant velocity. On a position time graph of the car, the slope of the line gives the**



A force

B velocity

C momentum

D acceleration

Understand It with Pulse | Flag a mistake

16 **An object moves at constant velocity. The net force on it is**

- **A** opposite the motion
- **B** equal to its weight
- **C** in the direction of motion
- **D** zero

Understand It with Pulse | Flag a mistake

17 **An object moves in a circle at speed 8 m/s with radius 16 m. Its centripetal acceleration is**

- **A** 128 m/s^2
- **B** 4 m/s^2
- **C** 2 m/s^2
- **D** 64 m/s^2

Understand It with Pulse | Flag a mistake

18 **A 3 kg object moves in a circle at speed 6 m/s with radius 3 m. The centripetal force is**

- A 18 N
- B 36 N
- C 54 N
- D 6 N

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19 **An object of weight 400 N sits on a ramp at 30 degrees to the horizontal. The component of weight down the ramp is**

- A 400 N
- B 800 N
- C 100 N
- D 200 N

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20 **A race car moving at 20 m/s brakes with acceleration -4 m/s². The stopping distance, in meters, is ____**



ANSWER _____

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21 **An object travels 180 m in 15 s. Its average speed, in meters per second, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

22 **An object speeds up from 0 m/s to 24 m/s in 4 s. Its average acceleration, in meters per second squared, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **A net force of 60 N acts on a 20 kg object. Its acceleration, in meters per second squared, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **Displacement differs from distance because displacement includes**

A only the speed

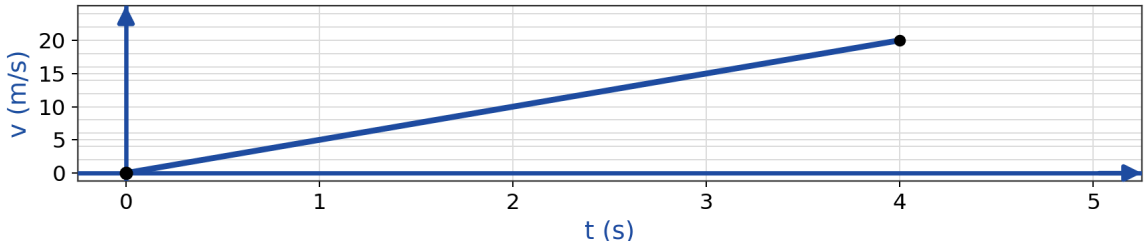
B direction

C only the time taken

D only the total path length

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25 **The graph shows velocity against time for a moving object. The acceleration of the object is**



A 80 m/s²

B 20 m/s²

C 5 m/s²

D 0.2 m/s²

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ANSWER KEY

1.	A	**10.**	D	**19.**	D
2.	D	**11.**	B	**20.**	50
3.	A	**12.**	B	**21.**	12
4.	D	**13.**	A	**22.**	6
5.	40	**14.**	C	**23.**	3
6.	D	**15.**	B	**24.**	B
7.	C	**16.**	D	**25.**	C
8.	B	**17.**	B		
9.	C	**18.**	B		

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