ARIZONA 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 4 m/s² for 5 s. Its final speed is**



A 10 m/s

B 20 m/s

C 25 m/s

D 9 m/s

Understand It with Pulse | Flag a mistake

2 **An object moves with initial speed 6 m/s and acceleration 2 m/s² for 4 s. Its displacement is**

- **A** 40 m
- **B** 24 m
- **C** 56 m
- **D** 32 m

Understand It with Pulse | Flag a mistake

3 **An object starts from rest and accelerates at 8 m/s² over a distance of 16 m. Its final speed is**

- **A** 8 m/s
- **B** 32 m/s
- **C** 16 m/s
- **D** 4 m/s

Understand It with Pulse | Flag a mistake

4 **Use g = 10 m/s². An object dropped from rest falls for 3 s. The distance it falls is**

A 15 m

B 45 m

C 30 m

D 90 m

Understand It with Pulse | Flag a mistake

5 **Use g = 10 m/s². A red apple dropped from rest falls for 6 s. Its speed then, in meters per second, is _____**



ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A projectile has horizontal speed 20 m/s and stays in the air for 5 s. Its horizontal range is**

- A 25 m
- B 45 m
- C 100 m
- D 120 m

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7 **Use g = 10 m/s². A ball is thrown upward with vertical speed 40 m/s. The time to reach its highest point is**

- A 2 s
- B 8 s
- C 5 s
- D 4 s

Understand It with Pulse | Flag a mistake

8 **A net force of 36 N acts on a 9 kg object. Its acceleration is**

- **A** 324 m/s²
- **B** 27 m/s²
- **C** 45 m/s²
- **D** 4 m/s²

Understand It with Pulse | Flag a mistake

9 **Use g = 10 m/s². The weight of a 15 kg object is**

- **A** 1.5 N
- **B** 150 N
- **C** 25 N
- **D** 1500 N

Understand It with Pulse | Flag a mistake

10 **A wooden crate slides across a floor. The coefficient of kinetic friction is 0.4 and the normal force is 50 N. The kinetic friction force is**



A 20 N

B 125 N

C 90 N

D 12.5 N

Understand It with Pulse | Flag a mistake

11 **Forces of 70 N east and 30 N west act on an object. The net force is**

- A 100 N east
- B 100 N west
- C 40 N west
- D 40 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 volume
- C mass
- 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 equal in size and direction

C opposite in size and direction

D unrelated to each other

Understand It with Pulse | Flag a mistake

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

A displacement

B acceleration

C average speed

D net force

Understand It with Pulse | Flag a mistake

15 **On a position time graph for a cyclist, the slope of the line gives the**



A acceleration

B force

C velocity

D momentum

Understand It with Pulse | Flag a mistake

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

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

Understand It with Pulse | Flag a mistake

17 **An object moves in a circle at speed 6 m/s with radius 9 m. Its centripetal acceleration is**

- **A** 54 m/s^2
- **B** 15 m/s^2
- **C** 1.5 m/s^2
- **D** 4 m/s^2

Understand It with Pulse | Flag a mistake

18 **A 2 kg object moves in a circle at speed 6 m/s with radius 3 m. The centripetal force is**

- A 4 N
- B 36 N
- C 24 N
- D 12 N

Understand It with Pulse | Flag a mistake

19 **An object of weight 300 N sits on a ramp at 30 degrees to the horizontal. The component of weight down the ramp is**

- A 300 N
- B 150 N
- C 75 N
- D 600 N

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20 **A car moving at 20 m/s brakes with acceleration -5 m/s². The stopping distance, in meters, is ____**



ANSWER _____

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21 **An object travels 240 m in 20 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 30 m/s in 5 s. Its average acceleration, in meters per second squared, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **A net force of 45 N acts on a 15 kg object. Its acceleration, in meters per second squared, is ____**

ANSWER _____

Understand It with Pulse | Flag a mistake

24 **A train rounds a bend in the track. Displacement differs from distance because displacement includes**



A only the total path length

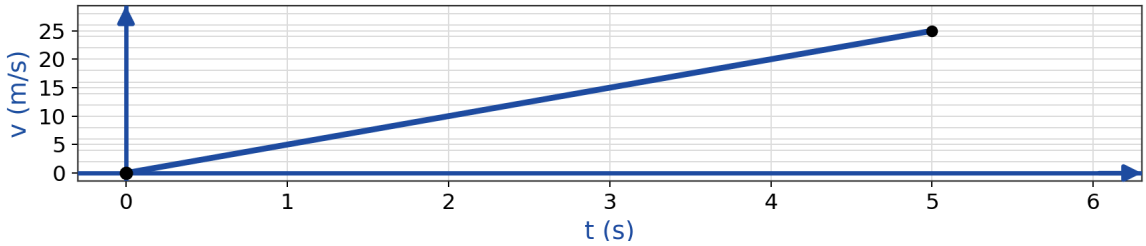
B only the time taken

C only the speed

D direction

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



A 5 m/s²

B 0.2 m/s²

C 25 m/s²

D 125 m/s²

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ANSWER KEY

1. B
2. A
3. C
4. B
5. 60
6. C
7. D
8. D
9. B
10. A
11. D
12. C
13. A
14. B
15. C
16. A
17. D
18. C
19. B
20. 40
21. 12
22. 6
23. 3
24. D
25. A

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