ALASKA 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 2 m/s² for 6 s. Its final speed is**



A 6 m/s

B 12 m/s

C 3 m/s

D 8 m/s

Understand It with Pulse | Flag a mistake

2 **An object moves with initial speed 8 m/s and acceleration 3 m/s² for 4 s. Its displacement is**

- **A** 56 m
- **B** 32 m
- **C** 44 m
- **D** 80 m

Understand It with Pulse | Flag a mistake

3 **An object starts from rest and accelerates at 6 m/s² over a distance of 27 m. Its final speed is**

- **A** 9 m/s
- **B** 27 m/s
- **C** 12 m/s
- **D** 18 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 160 m

C 80 m

D 20 m

Understand It with Pulse | Flag a mistake

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



ANSWER _____

Understand It with Pulse | Flag a mistake

6 **A projectile has horizontal speed 25 m/s and stays in the air for 4 s. Its horizontal range is**

- A 25 m
- B 50 m
- C 100 m
- D 125 m

Understand It with Pulse | Flag a mistake

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 1 s
- B 3 s
- C 6 s
- D 30 s

Understand It with Pulse | Flag a mistake

8 **A net force of 24 N acts on a 6 kg object. Its acceleration is**

- **A** 144 m/s²
- **B** 0.25 m/s²
- **C** 30 m/s²
- **D** 4 m/s²

Understand It with Pulse | Flag a mistake

9 **Use g = 10 m/s². The weight of a 12 kg object is**

- **A** 1.2 N
- **B** 120 N
- **C** 22 N
- **D** 1200 N

Understand It with Pulse | Flag a mistake

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 40 N

B 130 N

C 160 N

D 16 N

Understand It with Pulse | Flag a mistake

11 **Forces of 50 N east and 20 N west act on an object. The net force is**

- A 70 N east
- B 70 N west
- C 30 N west
- D 30 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 **A car moves at constant velocity. On a position time graph of the car, 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 8 m/s with radius 16 m. Its centripetal acceleration is**

A 0.5 m/s^2

B 2 m/s^2

C 128 m/s^2

D 4 m/s^2

Understand It with Pulse | Flag a mistake

18 **A 3 kg object moves in a circle at speed 4 m/s with radius 2 m. The centripetal force is**

- A 6 N
- B 48 N
- C 24 N
- D 8 N

Understand It with Pulse | Flag a mistake

19 **An object of weight 200 N sits on a ramp at 30 degrees to the horizontal. The component of weight down the ramp is**

- A 200 N
- B 100 N
- C 50 N
- D 400 N

Understand It with Pulse | Flag a mistake

20 **A car moving at 24 m/s brakes with acceleration -6 m/s². The stopping distance, in meters, is ____**



ANSWER _____

Understand It with Pulse | Flag a mistake

21 **An object travels 150 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 36 m/s in 6 s. Its average acceleration, in meters per second squared, is _____**

ANSWER _____

Understand It with Pulse | Flag a mistake

23 **A net force of 28 N acts on a 7 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 total path length

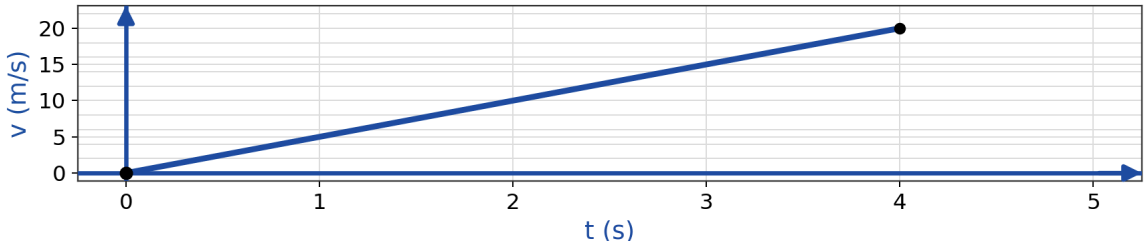
B only the time taken

C only the speed

D direction

Understand It with Pulse | Flag a mistake

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 20 m/s²

D 80 m/s²

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. B
2. A
3. D
4. C
5. 50
6. C
7. B
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. 48
21. 10
22. 6
23. 4
24. D
25. A

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