Laws of Motion - Set I

Phys Sci

Name _____ Class _____ Date _____

1 A **70-kilogram** astronaut has a weight of **560 newtons** on the surface of planet Alpha. What is the **acceleration due to gravity** on planet Alpha?

A 0.0 m/s²
B 8.0 m/s²
C 9.8 m/s²
D 80. m/s²

2 The speed of a car is increased uniformly from **20 meters per second** to **30 meters per second** in **4.0 seconds**. The magnitude of the car's **average acceleration** in this 4.0-second interval is

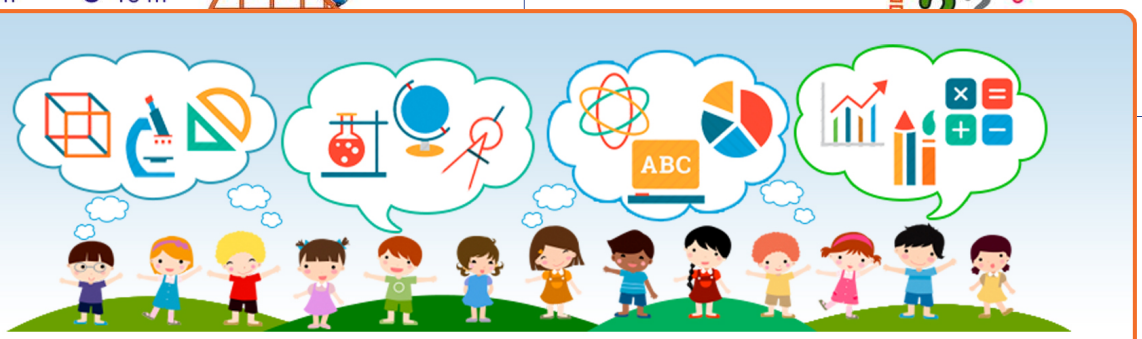
A 0.40 m/s²
B 2.5 m/s²
C 10 m/s²
D 13 m/s²

3 A roller coaster, traveling with an initial speed of 15 meters per second, **decelerates** uniformly at **-7.0 meters per second²** to a full stop. Approximately **how far** does the roller coaster travel during its deceleration?

A 1.0 m **C** 16 m

4 Which term represents a **scalar quantity**?

A distance
B displacement
C force
D weight

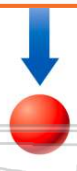


5 A

A
B
C
D

7

A 1 s
B 2 s
C 0.5 s
D 10 s



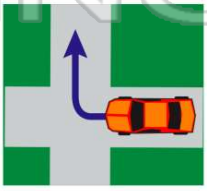
runner for the race is approximately

A 0.16 km/min
B 0.33 km/min
C 12 km/min
D 24 km/min

9 A golf ball is hit with an initial velocity of **15 meters per second** at an angle of **35 degrees** above the horizontal. What is the **vertical component** of the golf ball's **initial velocity**?

A 8.6 m/s
B 9.8 m/s
C 12 m/s
D 15 m/s

10 If the direction of a moving car changes and its **speed remains constant**, which **quantity** must remain the **same**?



A velocity
B momentum
C displacement
D kinetic energy

Laws of Motion - Set I

Phys Sci

ANSWER KEY

A **70-kilogram** astronaut has a weight of **560 newtons** on the surface of planet Alpha. What is the **acceleration due to gravity** on planet Alpha?

A 0.0 m/s²
B 8.0 m/s²
C 9.8 m/s²
D 80. m/s²

b

The speed of a car is increased uniformly from **20 meters per second** to **30 meters per second** in **4.0 seconds**. The magnitude of the car's **average acceleration** in this 4.0-second interval is

A 0.40 m/s²
B 2.5 m/s²
C 10 m/s²
D 13 m/s²

b

A roller coaster, traveling with an initial speed of 15 meters per second, **decelerates** uniformly at **-7.0 meters per second²** to a full stop. Approximately **how far** does the roller coaster travel during its deceleration?

A 1.0 m
B 2.0 m
C 16 m
D 32 m

c

Which term represents a **scalar quantity**?

A distance
B displacement
C force
D weight

a

B 2 s
C 0.5 s
D 10 s

A 0.16 km/min
B 0.33 km/min
C 12 km/min
D 24 km/min

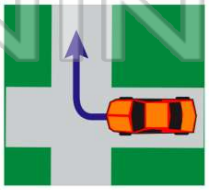
A golf ball is hit with an initial velocity of **15 meters per second** at an angle of **35 degrees** above the horizontal. What is the **vertical component** of the golf ball's **initial velocity**?

A 8.6 m/s
B 9.8 m/s
C 12 m/s
D 15 m/s

a

If the direction of a moving car changes and its **speed remains constant**, which **quantity** must remain the **same**?

A velocity
B momentum
C displacement
D kinetic energy



d