Forces - Set I

Phys Sci

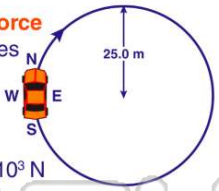
Name _____ Class _____ Date _____

1 A light spring is attached to a heavier spring at one end. A pulse traveling along the light spring is **incident** on the boundary with the heavier spring. At this boundary, the **pulse** will be

A totally reflected
B totally absorbed
C totally transmitted into the heavier spring
D partially reflected and partially transmitted into the heavier spring

2 A **1.00 × 10³ kilogram** car is driven clockwise around a flat circular track with a **radius of 25 meters** at a constant speed of **5.00 m/s**.

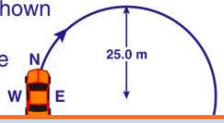
What **minimum friction force** must exist between the tires and the road to prevent the car from skidding as it rounds the curve?



A 1.25×10^5 N **C** 5.00×10^3 N
B 9.80×10^4 N **D** 1.00×10^3 N

3 A **1.00 × 10³ kilogram** car is driven clockwise around a flat circular track with a **radius of 25 meters** at a constant speed of **5.00 m/s**.

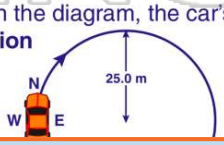
If the circular track were to suddenly become frictionless at the instant shown in the diagram, the car's **direction of travel** would be



A toward E

4 A **1.00 × 10³ kilogram** car is driven clockwise around a flat circular track with a **radius of 25 meters** at a constant speed of **5.00 m/s**.

At the instant shown in the diagram, the car's **centripetal acceleration** is directed



A toward E

PREVIEW

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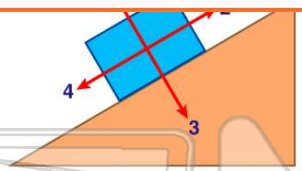
5

7

A 1
B 2
C 3
D 4



A 0 N and 45 N
B 5 N and 9 N
C 20 N and 25 N
D 0 N and 50 N

9 The magnitude of the force that a baseball bat exerts on a ball is **50 newtons**. The magnitude of the force that the ball exerts on the bat is

A 5.0 N
B 10 N
C 50 N
D 250 N

10 A bullet traveling at **5.0 × 10² meters per second** is brought to rest by an impulse of **50 newton•seconds**. What is the **mass** of the bullet?

A 1.0×10^{-2} kg
B 1.0×10^{-1} kg
C 1.0×10^{1} kg
D 2.5×10^{4} kg

Phys Sci

ANSWER KEY

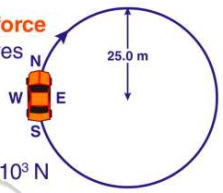
A light spring is attached to a heavier spring at one end. A pulse traveling along the light spring is **incident** on the boundary with the heavier spring. At this boundary, the **pulse** will be

A totally reflected
B totally absorbed
C totally transmitted into the heavier spring
D partially reflected and partially transmitted into the heavier spring

d

A **1.00 × 10³ kilogram** car is driven clockwise around a flat circular track with a **radius of 25 meters** at a constant speed of **5.00 m/s**.

What **minimum friction force** must exist between the tires and the road to prevent the car from skidding as it rounds the curve?



A 1.25×10^5 N **C** 5.00×10^3 N
B 9.80×10^4 N **D** 1.00×10^3 N

d

A **1.00 × 10³ kilogram** car is driven clockwise around a flat circular track with a **radius of 25 meters** at a constant speed of **5.00 m/s**.

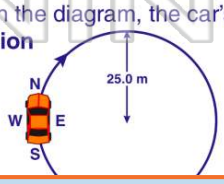
If the circular track were to suddenly become frictionless at the instant shown in the diagram, the car's **direction of travel** would be

A toward E
B toward N
C toward W
D

b

A **1.00 × 10³ kilogram** car is driven clockwise around a flat circular track with a **radius of 25 meters** at a constant speed of **5.00 m/s**.

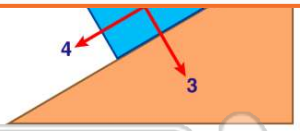
At the instant shown in the diagram, the car's **centripetal acceleration** is directed



A toward E
B toward N
C toward W

a

A 1
B 2
C 3
D 4



B 5 N and 9 N
C 20 N and 25 N
D 0 N and 50 N

The magnitude of the force that a baseball bat exerts on a ball is **50 newtons**. The magnitude of the force that the ball exerts on the bat is

A 5.0 N
B 10 N
C 50 N
D 250 N

c

A bullet traveling at **5.0×10^2 meters per second** is brought to rest by an impulse of **50 newton•seconds**. What is the **mass** of the bullet?

A 1.0×10^{-2} kg
B 1.0×10^{-1} kg
C 1.0×10^{1} kg
D 2.5×10^{4} kg

b