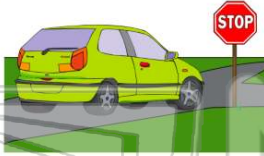




Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

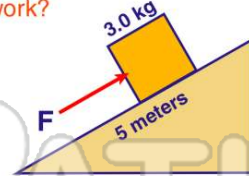
1 A 40-kilogram mass is moving across a horizontal surface at 5.0 meters per second. What is the magnitude of the net force required to bring the mass to a stop in 8.0 seconds?

- A 1.0 N
- B 5.0 N
- C 25 N
- D 40 N



2 A student does 60 joules of work pushing a 3.0-kilogram box up the full length of a ramp that is 5.0 meters long. What is the magnitude of the force applied to the box to do this work?

- A 20. N
- B 15 N
- C 12 N
- D 4.0 N



3 A boat weighing  $9.0 \times 10^2$  newtons requires a horizontal force of  $6.0 \times 10^2$  newtons to move it across the water at  $1.5 \times 10^1$  meters per second. The boat's engine must provide energy at the rate of

- A  $2.5 \times 10^{-2}$  J
- B  $4.0 \times 10^1$  W



4 A high school physics student is sitting in a seat reading this question. The magnitude of the force with which the seat is pushing up on the student to support him is closest to

- A 0 N
- B 60 N
- C 600 N



## PREVIEW

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7 A ball is thrown vertically upwards with an initial velocity of 10 m/s. What is the ball's velocity when it reaches its maximum height?

- A  $8.0 \text{ N}\cdot\text{s}$
- B  $78 \text{ N}\cdot\text{s}$
- C  $4.0 \times 10^2 \text{ N}\cdot\text{s}$
- D  $1.0 \times 10^3 \text{ N}\cdot\text{s}$



8 A student pushes a 10-kilogram box up a ramp that is 5.0 meters long. The student does 60 joules of work. What is the magnitude of the force applied to the box to do this work?

- A zero
- B smaller, but greater than zero
- C larger
- D the same

9 Sand is often placed on an icy road because the sand

- A decreases the coefficient of friction between the tires of a car and the road
- B increases the coefficient of friction between the tires of a car and the road
- C decreases the gravitational force on a car
- D increases the normal force of a car on the road

10 In the diagram below, a 10-kilogram block is at rest on a plane inclined at  $15^\circ$  to the horizontal.

As the angle of the incline is increased to  $30^\circ$ , the mass of the block will

- A decrease
- B increase
- C remain the same

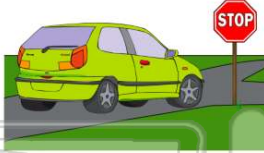




## ANSWER KEY

A 40-kilogram mass is moving across a horizontal surface at 5.0 meters per second. What is the magnitude of the net force required to bring the mass to a stop in 8.0 seconds?

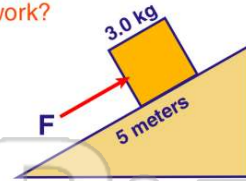
- A 1.0 N
- B 5.0 N
- C 25 N
- D 40 N



(C)

A student does 60 joules of work pushing a 3.0-kilogram box up the full length of a ramp that is 5.0 meters long. What is the magnitude of the force applied to the box to do this work?

- A 20. N
- B 15 N
- C 12 N
- D 4.0 N



(C)

A boat weighing  $9.0 \times 10^2$  newtons requires a horizontal force of  $6.0 \times 10^2$  newtons to move it across the water at  $1.5 \times 10^1$  meters per second. The boat's engine must provide energy at the rate of

- A  $2.5 \times 10^{-2}$  J
- B  $4.0 \times 10^1$  W
- C  $7.5 \times 10^3$  J
- D



(d)

A high school physics student is sitting in a seat reading this question. The magnitude of the force with which the seat is pushing up on the student to support him is closest to

- A 0 N
- B 60 N
- C 600 N
- D 6,000 N



(C)



## PREVIEW

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- B 78 N•s
- C  $4.0 \times 10^2$  N•s
- D  $1.0 \times 10^3$  N•s



- B smaller, but greater than zero
- C larger
- D the same

Sand is often placed on an icy road because the sand

- A decreases the coefficient of friction between the tires of a car and the road
- B increases the coefficient of friction between the tires of a car and the road
- C decreases the gravitational force on a car
- D increases the normal force of a car on the road

(b)

In the diagram below, a 10-kilogram block is at rest on a plane inclined at  $15^\circ$  to the horizontal.

As the angle of the incline is increased to  $30^\circ$ , the mass of the block will

- A decrease
- B increase
- C remain the same



(c)