




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

- 1 Equilibrium exists in a system where three forces are acting concurrently on an object. If the system includes a **5.0-newton force due north** and a **2.0-newton force due south**, the **third force** must be
- A 7.0 N south
  - B 7.0 N north
  - C 3.0 N south
  - D 3.0 N north

- 3 Two forces are applied to a **2.0-kilogram** block on a frictionless horizontal surface, as shown in the diagram below.
- 
- The **acceleration** of the block is
- A 1.5 m/s<sup>2</sup> to the right
  - B 2.5 m/s<sup>2</sup> to the left

- 2 Which terms represent a **vector quantity** and its respective unit?
- A weight — kilogram
  - B mass — kilogram
  - C force — Newton
  - D momentum — Newton

- 4 A **2,400-kilogram car** is traveling at a speed of **20 meters per second**. Compared to the magnitude of the force required to stop the car in **12 seconds**, the magnitude of the force required to stop the car in **6.0 seconds** is
- A half as great
  - B twice as great

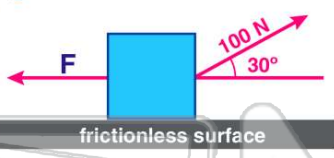
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## PREVIEW

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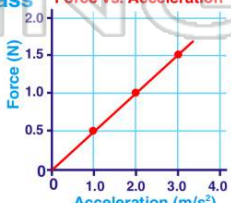
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equilibrium?
- A 50.0 N
  - B 86.6 N
  - C 100 N
  - D 187 N



- A 5 N northeast
- B 10 N southwest
- C 7 N northeast
- D 7 N southwest



- 9 In to how many possible **components** can a **single force** be resolved?
- A an unlimited number
  - B two components
  - C three components
  - D four components at right angles to each other

- 10 The graph below represents the relationship between the forces applied to an object and the corresponding accelerations produced. What is the **inertial mass** of the object?
- 
- A 1.0 kg
  - B 2.0 kg
  - C 0.50 kg
  - D 1.5 kg



## ANSWER KEY

Equilibrium exists in a system where three forces are acting concurrently on an object. If the system includes a **5.0-newton force due north** and a **2.0-newton force due south**, the **third force** must be

- A 7.0 N south
- B 7.0 N north
- C 3.0 N south
- D 3.0 N north

(C)

Which terms represent a **vector quantity** and its respective unit?

- A weight — kilogram
- B mass — kilogram
- C force — Newton
- D momentum — Newton

(C)

Two forces are applied to a **2.0-kilogram** block on a frictionless horizontal surface, as shown in the diagram below.

The **acceleration** of the block is



- A 1.5 m/s<sup>2</sup> to the right
- B 2.5 m/s<sup>2</sup> to the left
- C 2.5 m/s<sup>2</sup> to the right
- D 1.5 m/s<sup>2</sup> to the left

(b)

A **2,400-kilogram** car is traveling at a speed of **20 meters per second**. Compared to the magnitude of the force required to stop the car in **12 seconds**, the magnitude of the force required to stop the car in **6.0 seconds** is

- A half as great
- B twice as great
- C the same
- D four times as great



(b)



## PREVIEW

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- A 50.0 N
- B 86.6 N
- C 100 N
- D 187 N



- A 10 N southwest
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- C 7 N southwest
- D 10 N northeast



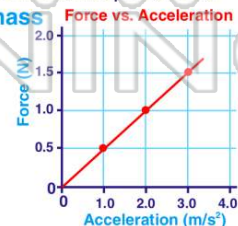
In to how many possible **components** can a **single force** be resolved?

- A an unlimited number
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- C three components
- D four components at right angles to each other

(a)

The graph below represents the relationship between the forces applied to an object and the corresponding accelerations produced. What is the **inertial mass** of the object?

- A 1.0 kg
- B 2.0 kg
- C 0.50 kg
- D 1.5 kg



(c)