

# Mechanics

## MCQ Unit

### 04: Dynamics

Author: Saylor Foundation

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## 1. Unit 04: Dynamics

## 4. Chapter: Unit 04: Dynamics

### 1. Unit 04: Dynamics Questions

#### 4.1.1. A person is dragging an object across a rough surface using a rope....

Author: Saylor Foundation

A person is dragging an object across a rough surface using a rope. Which of the following statements is correct?

Please choose only one answer:

- The force the rope exerts on the person is greater than the force the rope exerts on the object because of the resistance due to friction.
- The force the rope exerts on the person is less than the force the rope exerts on the object because of the resistance due to friction.
- The force the rope exerts on the person is equal to the force the rope exerts on the object.
- All of these answers are possible, depending on the nature of the other forces involved. For instance, is someone else helping him drag the object?

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#### 4.1.2. If a 2.0 kg mass is suspended from a spring with a spring constant ...

Author: Saylor Foundation

If a 2.0 kg mass is suspended from a spring with a spring constant of 30 N/m, then how much will the spring stretch?

Please choose only one answer:

- 0.067 m
- 0.12 m
- 0.65 m
- 0.83 m

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4.1.3. If a 6 kg object experiences a force of 5 N in the +x direction, 4 ...

Author: Saylor Foundation

If a 6 kg object experiences a force of 5 N in the +x direction, 4 N in the +y direction, 2 N in the -x direction, and 4 N in the -y direction, then what is the acceleration of the object?

Please choose only one answer:

- 2.5 m/s<sup>2</sup> in the +x direction
- 1.33 m/s<sup>2</sup> in the +x direction
- 1.17 m/s<sup>2</sup> in the +x direction
- 0.50 m/s<sup>2</sup> in the +x direction

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4.1.4. If an object experiences a force of 5 N in the +x direction, 4 N in...

Author: Saylor Foundation

If an object experiences a force of 5 N in the +x direction, 4 N in the +y direction, 2 N in the -x direction, and 4 N in the -y direction, then what is the magnitude of the net force on the object?

Please choose only one answer:

- 15 N
- 8 N
- 7 N
- 3 N

Check the answer of this question online at QuizOver.com:

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#### 4.1.5. If two equal non-zero forces are acting on an object, which of the ...

Author: Saylor Foundation

If two equal non-zero forces are acting on an object, which of the following statements is correct?

Please choose only one answer:

- The net force on the object cannot be zero even if the motion is one-dimensional.
- The net force cannot be zero if there is an angle between the two forces.
- The net force can be zero if the angle between the two forces is zero.
- The net force can be zero if the angle between the two forces is 180°.

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#### 4.1.6. What factors does the period of oscillation of a small amplitude pe...

Author: Saylor Foundation

What factors does the period of oscillation of a small amplitude pendulum depend on?

Please choose only one answer:

- Only the length of the pendulum
- Only the mass of the pendulum bob
- Both the length of the pendulum and the mass of the bob
- Both the length of the pendulum and the acceleration due to gravity

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#### 4.1.7. Which of the following accurately states Hook's law?

Author: Saylor Foundation

Which of the following accurately states Hook's law?

Please choose only one answer:

- The force exerted by a spring is proportional to the distance the spring is stretched or compressed.
- The force required to twist a metal bar is proportional to the amount of the twist.
- The period of oscillation for a pendulum is independent of the amplitude of oscillation for small angles of oscillation.
- For every action, there is an equal and opposite reaction.

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#### 4.1.8. Which of the following statements is true regarding free-body diagr...

Author: Saylor Foundation

Which of the following statements is true regarding free-body diagrams?

Please choose only one answer:

- A free-body diagram is a drawing of the forces the objects exerts on its surroundings.
- A free-body diagram is a drawing of the forces exerted on the object.
- A free-body diagram is a drawing of the forces exerted on and by the object.
- A free-body diagram is a drawing of the forces exerted on the object parallel to the direction of its motion.

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#### 4.1.9. Which of the following statements regarding friction is false?

Author: Saylor Foundation

Which of the following statements regarding friction is false?

Please choose only one answer:

- Friction always acts in the direction opposite the motion.
- Friction always causes a reduction of the kinetic energy of the object.
- Friction always produces heat.
- Friction always does negative work on the object.

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#### 4.1.10. Which of the following statements regarding the concepts of mass an...

Author: Saylor Foundation

Which of the following statements regarding the concepts of mass and inertia is true?

Please choose only one answer:

- Both mass and inertia are measured in the same units.
- Mass is a quantitative property of an object, whereas inertia refers to the tendency of an object to maintain its state of motion.
- The inertia of an object is the product of its mass and its velocity.
- All of these answers

Check the answer of this question online at QuizOver.com:

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