Torque Quiz Answer Key PDF

Torque Quiz Answer Key PDF

Disclaimer: The torque quiz answer key pdf was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at max@studyblaze.io.

What is the standard unit of torque in the International System of Units (SI)?

A. Joule
B. Newton
C. Newton-meter ✓
D. Watt

Discuss the importance of torque in mechanical systems, such as engines or gears.

A. Torque is irrelevant in mechanical systems
B. Torque is only important in linear systems
C. Torque is crucial for rotational motion ✓
D. Torque only affects speed, not power

Which of the following best describes torque?

A. A measure of linear force
B. A measure of rotational force ✓
C. A measure of gravitational force
D. A measure of magnetic force

What is the rotational equivalent of mass in torque calculations?

A. Force
B. Moment of inertia ✓
C. Velocity
D. Acceleration

Which of the following are examples of torque in everyday life?

A. Opening a door ✓
B. Using a wrench ✓
C. Pushing a car
D. Operating a seesaw ✓

Which rule helps determine the direction of the torque vector?

A. Left-hand rule
B. Right-hand rule ✓
C. Torque rule
D. Vector rule

Describe a real-world scenario where dynamic torque is observed and explain the forces involved.

A. A spinning wheel
B. A car engine ✓
C. A rotating fan
D. A pendulum swinging

What happens when an object is in rotational equilibrium?

A. It accelerates linearly
B. It rotates faster
C. The sum of all torques is zero ✓
D. It stops rotating

How does the moment of inertia affect the torque required to rotate an object?

A. It decreases torque required
B. It increases torque required ✓
C. It has no effect on torque
D. It only affects linear motion

What is the formula for calculating torque?

A. $\tau = m \times a$
B. $\tau = r \times F$ ✓

C. $\tau = F \times d$
D. $\tau = p \times v$

Which of the following statements about torque are true?

A. Torque is a scalar quantity
B. Torque can cause an object to rotate ✓
C. Torque is measured in Newton-meters ✓
D. Torque is independent of the force applied

In a balanced seesaw, which of the following must be true?

A. The seesaw is in rotational equilibrium ✓
B. The net torque is zero ✓
C. The weights on both sides are equal
D. The lever arms are equal

What are the components of torque?

A. Mass
B. Lever arm ✓
C. Force ✓
D. Temperature

Explain how the right-hand rule is used to determine the direction of torque.

A. Curl fingers in the direction of force
B. Curl fingers in the direction of rotation ✓
C. Point thumb in the direction of force
D. Use left hand for torque direction

What is the relationship between torque and angular acceleration in rotational motion?

A. Torque is inversely proportional to angular acceleration
B. Torque is directly proportional to angular acceleration ✓
C. Torque has no relationship with angular acceleration

D. Torque only affects linear acceleration

Which component is essential for calculating torque?

A. Mass
B. Velocity
C. Lever arm ✓
D. Temperature

Which devices are used to measure torque?

A. Torque wrench ✓
B. Spring scale
C. Torque sensor ✓
D. Thermometer

Provide an example of a system in rotational equilibrium and explain how the torques are balanced.

A. A balanced seesaw ✓
B. A spinning top
C. A rotating carousel
D. A pendulum at rest

In which scenario is static torque present?

A. A spinning top
B. A stationary door with a force applied ✓
C. A rolling ball
D. A moving car

What factors affect the magnitude of torque?

A. Force applied ✓
B. Distance from the pivot ✓
C. Angle of force application ✓
D. Color of the object