

Torque Quiz PDF

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

- Joule
- Newton
- Newton-meter
- Watt

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

- Torque is irrelevant in mechanical systems
- Torque is only important in linear systems
- Torque is crucial for rotational motion
- Torque only affects speed, not power

Which of the following best describes torque?

- A measure of linear force
- A measure of rotational force
- A measure of gravitational force
- A measure of magnetic force

What is the rotational equivalent of mass in torque calculations?

- Force
- Moment of inertia
- Velocity
- Acceleration

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

- Opening a door
- Using a wrench

- Pushing a car
- Operating a seesaw

Which rule helps determine the direction of the torque vector?

- Left-hand rule
- Right-hand rule
- Torque rule
- Vector rule

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

- A spinning wheel
- A car engine
- A rotating fan
- A pendulum swinging

What happens when an object is in rotational equilibrium?

- It accelerates linearly
- It rotates faster
- The sum of all torques is zero
- It stops rotating

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

- It decreases torque required
- It increases torque required
- It has no effect on torque
- It only affects linear motion

What is the formula for calculating torque?

- $\tau = m \times a$
- $\tau = r \times F$
- $\tau = F \times d$
- $\tau = p \times v$

Which of the following statements about torque are true?

- Torque is a scalar quantity
- Torque can cause an object to rotate
- Torque is measured in Newton-meters
- Torque is independent of the force applied

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

- The seesaw is in rotational equilibrium
- The net torque is zero
- The weights on both sides are equal
- The lever arms are equal

What are the components of torque?

- Mass
- Lever arm
- Force
- Temperature

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

- Curl fingers in the direction of force
- Curl fingers in the direction of rotation
- Point thumb in the direction of force
- Use left hand for torque direction

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

- Torque is inversely proportional to angular acceleration
- Torque is directly proportional to angular acceleration
- Torque has no relationship with angular acceleration
- Torque only affects linear acceleration

Which component is essential for calculating torque?

- Mass
- Velocity
- Lever arm
- Temperature

Which devices are used to measure torque?

- Torque wrench
- Spring scale
- Torque sensor
- Thermometer

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

- A balanced seesaw
- A spinning top
- A rotating carousel
- A pendulum at rest

In which scenario is static torque present?

- A spinning top
- A stationary door with a force applied
- A rolling ball
- A moving car

What factors affect the magnitude of torque?

- Force applied
- Distance from the pivot
- Angle of force application
- Color of the object