#### **Balanced vs. Unbalanced Torques**

#### Activity 1: Apprentice Difficulty Level Question Group 1 Questions 1

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques ( $\tau$ ) are shown.



Are these torques balanced or unbalanced?

Will the combined effect of these torques  $(\tau)$  cause the beam to undergo a rotational acceleration?

#### **Question 2**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques  $(\tau)$  are shown.



Are these torques balanced or unbalanced?

Will the combined effect of these torques  $(\tau)$  cause the beam to undergo a rotational acceleration?

#### **Question 3**



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 4**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques  $(\tau)$  are shown.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### Question Group 2 Question 5



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 6**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques  $(\tau)$  are shown.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 7**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques ( $\tau$ ) are shown.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 8**



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## Question Group 3 Question 9

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques ( $\tau$ ) are shown.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 10**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques  $(\tau)$  are shown.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 11**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques  $(\tau)$  are shown.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 12**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques ( $\tau$ ) are shown.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## Question Group 4 Question 13



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 14**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques  $(\tau)$  are shown.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 15**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques ( $\tau$ ) are shown.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 16**

The two dots on the diagram represent of point of application of two forces on a beam. The resulting torques ( $\tau$ ) are shown.



Are these torques balanced or unbalanced?

#### Activity 2: Master Difficulty Level Question Group 5 Question 17

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 18**

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 19**



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 20**

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## Question Group 6 Question 21



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 22**

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 23**



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 24**

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### Question Group 7 Question 25



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 26**

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 27**



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# **Question 28**

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

# Question Group 8 Question 29



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 30**

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 31**



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 32**

The diagram shows two forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

#### Activity 3: Wizard Difficulty Level Question Group 9 Question 33

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### **Question 34**

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### **Question 35**



Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 36**

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### Question Group 10 Question 37



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### **Question 38**

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

## **Question 39**

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 40**

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### Question Group 11 Question 41

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 42**



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### **Question 43**

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

## **Question 44**

The diagram shows three forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## Question Group 12 Question 45

The diagram shows four forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?

Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 46**

The diagram shows four forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

## **Question 47**



Are these torques balanced or unbalanced? Will the combined effect of these torques cause the beam to undergo a rotational acceleration?

#### **Question 48**

The diagram shows four forces and their point of application upon a beam. Each force will result in a torque.



Are these torques balanced or unbalanced?