

SAINT JOSEPH'S PREPARATORY SCHOOL
PHYSICS TEST QUESTIONS..... T P FITZPATRICK
TORQUE

1. Define "cross product".
2. When a force is applied to an object so that its line of action passes through the point of rotation, what torque results?
3. How is the resulting torque affected when a force is moved along its original line of action.
4. Is this a correct method for calculating the magnitude of a torque? "Multiply the magnitude of the applied force times the perpendicular distance between its line of action and the axis of rotation."
5. Is this a correct method for calculating the magnitude of a torque? "Multiply the component of the applied force that is perpendicular to the moment arm by the length of the moment arm."
6. Is this a correct method for calculating the magnitude of a torque? "Multiply the component of the applied force that is parallel to the moment arm by the length of the moment arm."
7. Is this ever a correct method for calculating the magnitude of a torque? "Multiply the magnitude of the applied force times the length of the moment arm."
8. Is this always a correct method for calculating the magnitude of a torque? "Multiply the magnitude of the applied force times the length of the moment arm."
9. What is the name given to the rotational equivalent of mass?
10. Write the rotational form of Newton's Second Law.
11. What is the direction of the vector that describes the rotation of an object that is rotating clockwise in the plane of the blackboard?
12. When a triple beam balance measures mass, what is balanced?
13. What is the name given to the rotational equivalent of force?
14. In order for an object to remain stationary, what two sums must be zero?
15. If an object is free to move in any way, when it rotates, where is its point of rotation?
16. In order for an object to be in complete equilibrium, the resultant of the forces acting on it must be zero. What other sum (resultant) must be zero?
17. Describe the right hand rule for determining the direction of torque and other rotational quantities.
18. What is the direction of the vector that describes the rotation of the earth on its axis?
19. What angle between the applied force and the vector describing its location will result in the largest torque?
20. When including the weight of an object as one of the forces that produces torque, Where is the weight of the object (force of gravity) considered to act?
21. An object will balance when supported at a single point only if the support acts along a line that goes through what point?
22. What is meant by the term "moment arm"?
23. What is meant by the term "moment of inertia"?
24. Through what point will the axis of rotation pass for an object that is free to spin on its own like a thrown stone or a binary star system?
25. What ratio is used to calculate the mechanical advantage of a simple machine or system?
26. What ratio is used to calculate the efficiency of a simple machine or system?
27. What is the formula for finding the kinetic energy of an object that is rotating and not moving linearly?
28. A steel ring and a wooden disk have the same radius and the same mass. If they both roll down identical inclined planes, which will roll down its plane faster?