

Due date: Fri Apr 10 11:59:59 pm 2015 (EDT)

It is predicted that gradual warming of the Earth over the next century will cause substantial portions of the Greenland and Antarctic ice sheets to melt.

How will this affect the Earth's moment of inertia?

- A. Earth's moment of inertia will not change.
- B. Earth's moment of inertia will decrease.
- C. Earth's moment of inertia will increase.

You are correct. Your receipt no. is 156-3673

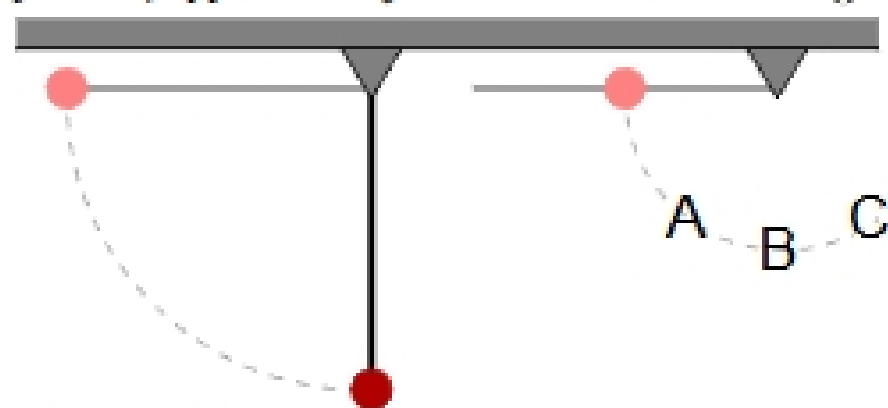
How will this affect the amount of time in one day?

- A. The day length will increase.
- B. The day length will not change.
- C. The day length will decrease.

You are correct. Your receipt no. is 156-5126

Consider the two rotating systems shown below. Each one consists of a small dense mass m attached to a rod of negligible mass and length L . The rod is pivoted about one end. In one of the systems, the mass is attached to the free end of the rod; in the other system, the mass is attached to the rod's midpoint.

The rods are released from rest in the horizontal position at the same time. When the rod on the left reaches the vertical position, approximately where is the rod to the right?



- A. C: past vertical
- B. A: not yet vertical
- C. B: at vertical

You are correct. Your receipt no. is 156-2751

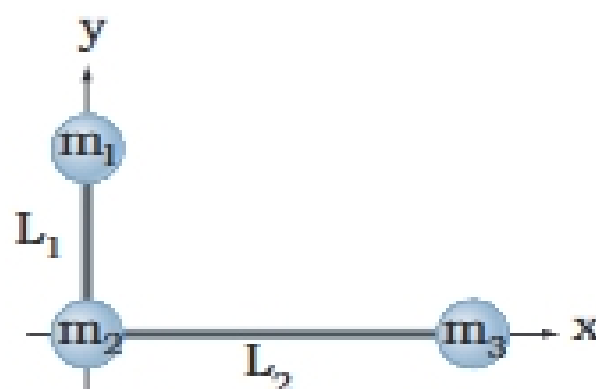
A playground merry-go-round spins about its axis with negligible friction. A child moves from the center of the merry-go-round to the rim. For this system, indicate which of the following quantities change.

Choices: Changed, Unchanged.

- Potential energy
- Rotational kinetic energy
- Mass
- Moment of inertia
- Angular speed
- Angular momentum

You are correct. Your receipt no. is 156-98

The L-shaped object in the figure below consists of three masses ($m_1 = 9.03$ kg, $m_2 = 1.14$ kg and $m_3 = 2.34$ kg) connected by light rods of length $L_1 = 1.11$ m and $L_2 = 1.82$ m.



What torque must be applied to this object to give it an angular acceleration of 1.20 rad/s² if it is rotated about the x axis?

You are correct. Your receipt no. is 156-838

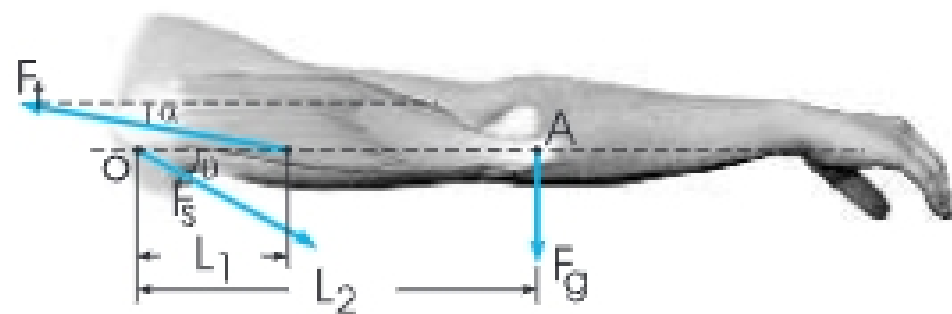
What torque must be applied to this object to give it an angular acceleration of 1.20 rad/s² if it is rotated about the y axis?

You are correct. Your receipt no. is 156-6247

What torque must be applied to this object to give it an angular acceleration of 1.20 rad/s² if it is rotated about the z axis (which is through the origin and perpendicular to the page)?

You are correct. Your receipt no. is 156-9434

The arm in the figure below weighs 35.3 N.



The force of gravity acting on the arm acts through point A. Assume that $L_1 = 0.0710\text{m}$, $L_2 = 0.295\text{m}$ and $\alpha = 12.7^\circ$. Determine the magnitude of the tension force F_t in the deltoid muscle.

You are correct. Your receipt no. is 156-9350

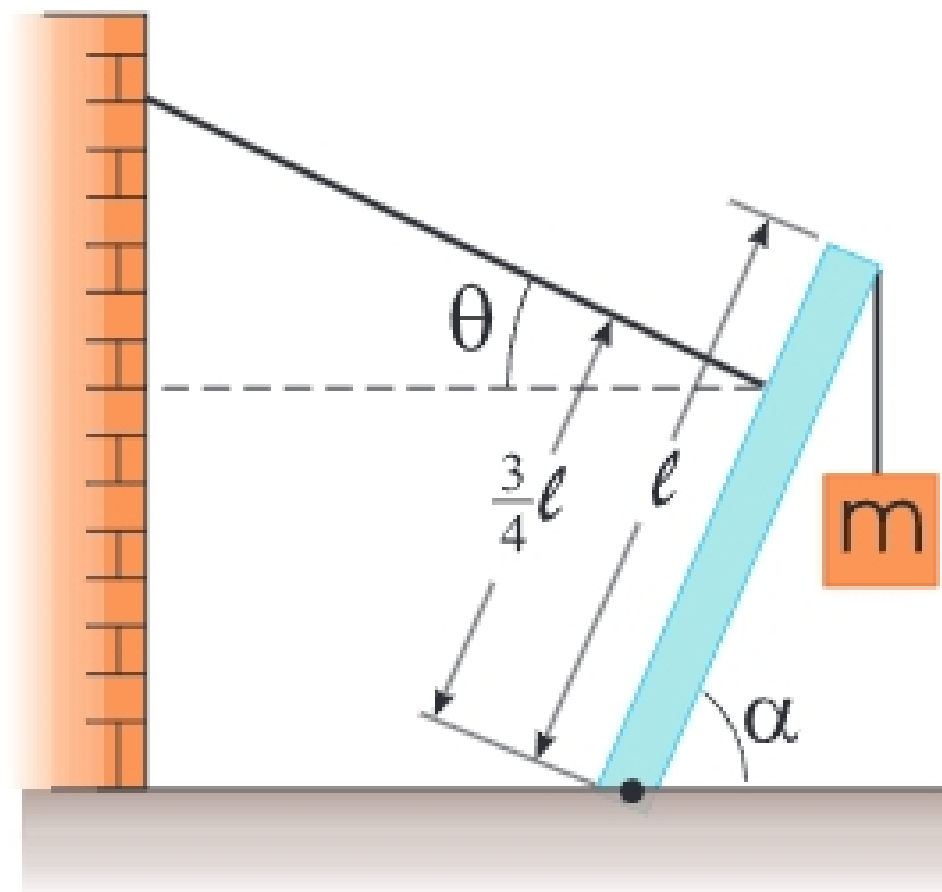
Determine the magnitude of the tension force F_s of the shoulder on the humerus (upper-arm bone) to hold the arm in the position shown.

You are correct. Your receipt no. is 156-9136

Determine the angle of tension force F_s relative to the x-axis.

You are correct. Your receipt no. is 156-87

A 1170 N uniform boom is supported by a cable perpendicular to the boom, as seen in the figure below.



The boom is hinged at the bottom, and an $m = 2190\text{ N}$ weight hangs from its top. Assume the angles to be $\alpha = 60.2^\circ$ and $\theta = 90.0^\circ - \alpha$. Find the tension in the supporting cable.

Incorrect.

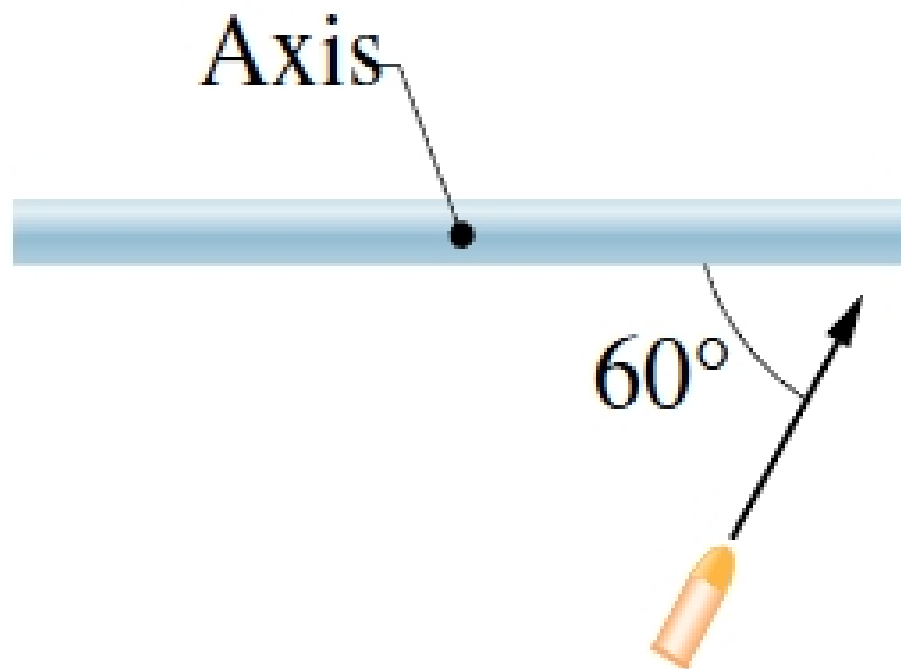
Tries 5/8

Find the x-components of the reaction force exerted on the boom by the hinge (choose to the right as positive).

Tries 0/8

Find the y-components of the reaction force exerted on the boom by the hinge (choose upwards as positive).

Tries 0/8



(hrwe11p51) A uniform thin rod of length 0.40 m and mass 6.5 kg can rotate in a horizontal plane about a vertical axis through its center. The rod is at rest when a 3.0-g bullet traveling in the horizontal plane of the rod is fired into one end of the rod. As viewed from above, the direction of the bullet velocity makes an angle of 60° with the rod (see the figure). If the bullet lodges in the rod and the angular velocity of the rod is 8.0 rad/s immediately after the collision, what is the magnitude of the bullet's velocity just before impact?

You are correct. Your receipt no. is 156-7869