FLINN SCIENTIFIC

Name_____

AP Physics 1 Review Questions

Integrating Content, Inquiry, and Reasoning

A merry-go-round of mass 100.0 kg and radius 3.00 m is at rest. The merry-go-round resembles a disk and is free to rotate about its central point on frictionless bearings. It is set into rotational motion by a person holding a handle on the outside edge and running counterclockwise for 13.0 seconds. When the handle is released, the angular velocity of the merry-go-round is 45.5 rad/s.

1. What is the angular momentum of the merry-go-round when the person releases the handle?

2. What is the angular acceleration of the merry-go-round immediately before the handle is released?

3. What is the angular acceleration immediately after the handle is released? Explain your answer.

4. What amount of torque was applied to the merry-go-round?

In order to stop the merry-go-round, a person pushes a "brake" button. The merry-go-round comes to a stop in 2.50 seconds.

5. What is the final angular momentum of the merry-go-round?

6. What amount of torque is applied by the brakes?

7. What is the angular acceleration of the merry-go-round over the 2.50 seconds?

8. What do the signs on the torque and angular acceleration values mean?