

1. You push a heavy object and a light object with the same force. Which object has a greater acceleration?
- a) Heavy object
  - b) Light object
  - c) Accelerations are equal
  - d) Not able to determine

$$\frac{\vec{F}}{m} = \vec{a}$$

2. You apply the same torque to two different merry-go-rounds. The mass of both the merry-go-rounds is the same but one is shaped like a disk while the other is shaped like a ring. Which merry-go-round is spinning faster?
- a) The disk shaped merry-go-round is spinning faster
  - b) The ring shaped merry-go-round is spinning faster
  - c) The both spin at the same rate
  - d) Not able to determine

$$\frac{\vec{\tau}}{I} = \vec{\alpha}$$

3. The slope of the position vs time graph is
- a) the change in velocity.
  - b) the velocity.
  - c) the acceleration.
  - d) the impulse.
4. The slope of the velocity vs time graph is
- a) the change in velocity.
  - b) the velocity.
  - c) the acceleration.
  - d) the impulse.

5. The area under the force vs time graph is
- a) the change in momentum.
  - b) the position.
  - c) the acceleration.
  - d) the angular acceleration.

$$\vec{F}\Delta t = \Delta\vec{p}$$

The next two questions refer to two objects. Object one is more massive than object two so  $m_1 > m_2$ . You push both objects for the same time with the same force.

6. Compare the momentum,  $p$ , of each object.
- a)  $p_1 > p_2$
  - b)  $p_1 = p_2$
  - c)  $p_1 < p_2$

$$\vec{F}\Delta t = \Delta\vec{p}$$

7. Compare the velocity,  $v$ , of each object.
- a)  $v_1 > v_2$
  - b)  $v_1 = v_2$
  - c)  $v_1 < v_2$

$$m_1 v_1 = p_1 = p_2 = m_2 v_2$$

$$m_1 > m_2 \therefore v_1 < v_2$$