Physics 2010
Fall 2007
Sid Rudolph

EXAM 3

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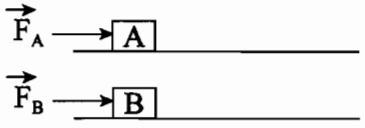
Name:_____ Student ID #:_____

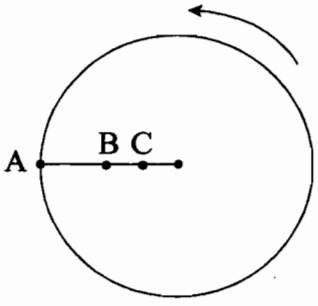
TA (circle one): Golda Kamdem Matthew Michael Paul

A. *[16 pts.]* Two objects, A and B, have identical masses, $m_A = m_B = m$, and are initially at rest on separate, frictionless, horizontal surfaces. Simultaneous horizontal forces are applied to each object (F_A to object A and F_B to object B) for a time of 5.0 s each. $F_A = 2F_B$. In the spaces below enter A, B, or same (if the quantity described is the same for A and B) to best answer the statements.



1. A The object that experiences the greater net force.
2. A The object that experiences the larger impulse over the 5.0 s.
3. B The object with the smaller momentum after 5.0 s.
4. A The object that has traveled the greater distance in 5.0 s.
5. A The object upon which the greater amount of work was done by the applied force over the 5.0 s.
6. A The object with the greater KE after the 5.0 s.
7. A The object on which the average power produced by the applied force during the 5.0 s was greater.
8. B The object with the smaller speed at the end of 5.0 s.

B. *[14 pts.]* Starting from rest a wheel undergoes a uniform counterclockwise circular acceleration. Points A, B and C are located along a radius line. See figure. In the spaces below enter A, B, C or same (the quantity described is the same at A, B and C) that best answers the questions.



1. SAMB The point showing the largest instantaneous angular speed.
2. A The point showing the largest tangential speed.
3. SAMB The point showing the largest angular acceleration.
4. A The point showing the largest tangential acceleration.
5. A The point shown the largest centripetal acceleration at a given instant.
6. SAMB The point that rotates through the largest number of radians in 3.0 s.
7. C The point that travels the smallest distance in 3.0 s.