

NAME _____

PERIOD _____

PHYSICS HOMEWORK QUIZ #14H

ROTATIONAL MOTION

A ball, shaped like a sphere, has a mass of $m_1 = 2.35$ kg and a radius of $R = 14.0$ cm. This ball is rolling with a linear velocity of $v = 7.50$ m/sec.

1. What is the moment of inertia of this ball? [3 pts]
2. What is the angular velocity of this ball as it rolls? [3 pts]
3. What will be the angular kinetic energy of this ball as it rolls? [3 pts]
4. What will be the angular displacement of this ball after 4.50 seconds? [3 pts]
5. How much torque would be required to accelerate this ball at the rate of 4.00 Rad/sec²? [3 pts]

