**Noteguide for Rotational Kinetic Energy (Videos 8K) Name**

 

Example: A 23.7 kg 45 cm radius cylinder is rolling at 13.5 m/s at the bottom of a hill.

What is its translational kinetic energy?

What is its rotational kinetic energy?

What is the total kinetic energy? What was the height of the hill?

Whiteboards

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| 1. What is the rotational kinetic energy of an object with an angular velocity of 12.0 rad/s, and a moment of inertia of 56.0 kg m2?(4.0 x 103 J) | 2. What must be the angular velocity of a flywheel that is a 22.4 kg, 54 cm radius cylinder to store 10,000. J of energy?(78 rad/s) |
| 3. What is the total kinetic energy (Translational and rotational) of a 2.5 cm diameter 405 g sphere rolling at 3.5 m/s?(3.5 J) | 4. If you exert 14.0 mN of torque through 3.10 rotations on a potter’s wheel that is a 26.0 kg, 68.0cm diameter uniform cylinder, what will be the final angular velocity? (19.1 rad/s) |