

Rotational Energy Homework

⚠ This is a preview of the draft version of the quiz

Started: Mar 6 at 10:38am

Quiz Instructions

Question 1

1 pts

A solid sphere is initially at rest at the top of an inclined plane. It rolls down the inclined plane without slipping. What is the linear velocity of the object at the bottom of the incline?

radius: .3 m

mass: 2 kg

$g = 10 \text{ m/s}^2$

height of the inclined plane: 4 m

Question 2

1 pts

A cylinder is initially at rest at the top of an inclined plane. It rolls down the inclined plane without slipping. What is the linear velocity of the object at the bottom of the incline?

radius: .3 m

mass: 2 kg

$g = 10 \text{ m/s}^2$

height of the inclined plane: 4 m

Question 3**1 pts**

A hoop is initially at rest at the top of an inclined plane. It rolls down the inclined plane without slipping. What is the linear velocity of the object at the bottom of the incline?

radius: .3 m

mass: 2 kg

$g = 10 \text{ m/s}^2$

height of the inclined plane: 4 m

Question 4**1 pts**

A sphere of mass 1 kg is at rest on an inclined plane. It begins with gravitational potential energy of 7 Joules. The sphere rolls down the inclined plane without slipping and has rotational energy of 3 Joules at the bottom of the ramp. How many Joules of translational kinetic energy does the sphere have at the bottom of the inclined plane?

Question 5**1 pts**

A sphere of mass 1 kg is at rest on an inclined plane. It begins with gravitational potential energy of 7 Joules. The sphere rolls down the inclined plane without slipping and has rotational energy of 3 Joules at the bottom of the ramp. What is the translational velocity of the sphere at the bottom of the ramp?

Question 6**1 pts**

What is the rotational energy of a sphere rolling without slipping that has angular velocity of 100 rad/s/s?

radius = .06 m

mass = 3 kg

Question 7**1 pts**

Which will of the following will be faster linearly at the bottom of an incline if the objects are released from rest at the same height and roll without slipping?

- A hoop of mass 16 kg
- A sphere of mass 4 kg

Question 8**1 pts**

Which will of the following will reach the bottom of an incline first if the objects are released from rest at the same height and roll without slipping?

- A sphere with mass 4 kg
- A hoop with mass 16 kg

Question 9**1 pts**

Which will of the following will be faster linearly at the bottom of an incline if the objects are released from rest at the same height and roll without slipping?

- Disc
- Sphere

Question 10**1 pts**

Which will of the following will be faster at the bottom of an incline if the objects are released from rest at the same height and roll without slipping?

- Hoop
- Disc

Not saved

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