

Semester Two Final Review



FORMAT

The final has been constructed in a way to check your knowledge and retention of physics. It will contain several Gedanken problems and a couple of work problem. Use this study guide in conjunction with past cycle sheets and class notes to prepare for the final. Start now, so you won't have to cram. Do not procrastinate!

TOPICS

Momentum and Collisions
 Conservation of Momentum
 Energy, Work and Power
 Torque and Rotation
 Rotational Inertia
 Circular Motion

CONCEPTS

momentum
 systems
 collisions
 impulse

conservation of momentum
 inelastic and elastic collisions
 potential and kinetic energy
 energy and work

work and power
 conservation of energy
 work and potential energy
 simple machines

angular position
 angular velocity
 angular acceleration

centripetal force
 centripetal acceleration
 centripetal force

BE ABLE TO

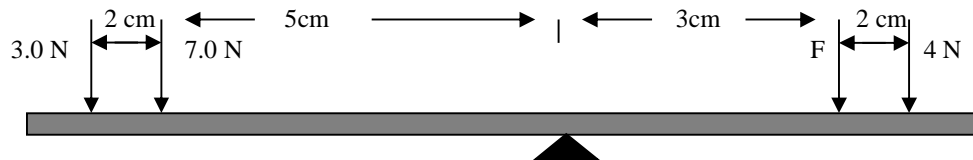
calculate momentum
 determine the system
 calculate collisions
 calculate work
 calculate power
 calculate velocity

determine potential energy
 determine kinetic energy
 determine energy loss
 calculate angular position
 calculate angular velocity
 calculate angular acceleration

use the motion equation
 use the position equation

Physics Practice

- _____ 1. A 9.00 kg ball has a momentum of 32 kg· m/s. What is the ball's velocity?
- _____ 2. A ball is moving at 15.0 m/s and has a momentum of 125.0 kg· m/s. What is the ball's mass?
- _____ 3. A jet ski has a mass of 250.0 kg. A constant force acts on it for 60.0 s. The snowmobile's initial velocity is 7.00 m/s and its final velocity is 28.0 m/s. What is the change in momentum?
- _____ 4. Casey's crane lifted a 30,000 kg block a distance of 25.0 meters in 120 seconds with a constant velocity.
- _____ 5. a) How much work does the crane do?
b) What is the average power consumption?
- _____ 6. Forces of 3, 7, 4, and F N are applied to a weightless board that rests a fulcrum. The board is in equilibrium (does not rotate). Find the magnitude of F.



- _____ 7. A bicycle wheel of radius 0.325 meters rotates at a speed of 10.0 m/s.
- _____ 8. a. If a person is riding the bike, how fast are they traveling?
b. What is the angular velocity of the bicycle's wheel?

“...trying times are no time to quit trying.”