

Review for Test Circular Motion

On a merry go round which horse has the most tangential/linear velocity? (inside or outside)

What direction is the force of anything traveling in a circle?

What is the direction of the acceleration of an object traveling in a circle?

If you spin a can on a string above your head and the string breaks what direction will the can go?

Where is the center of Mass of a baseball bat?

What makes an object topple?

When carrying a heavy object why do you extend your other arm out?

What is Torque?

What are several ways to increase Torque? (look at formula)

Rotational Inertia is the resistance an object has to change its rotational state of motion

Straight legs have more rotational inertia then bent legs.

A wheel has more rotational inertia than a disk

Know how to balance torques

If the radius of earth increases and the mass stays the same what would happen to your weight?

When two objects get closer together what happens to their gravitational attraction? (increase or decrease)

What doesn't the moon fall into the earth?

Define axis

Rotational speed is the same any where on a turning object.

A tightrope walker should carry a very long stick to keep from falling because of rotational inertia.

MATH

Know how to work period problems. $T = 1/f$

Know how to work linear/tangential speed problems. $V = 2\pi r / T$

Know how to work centripetal acceleration problems. $a_c = v^2 / r$

Know how to work Torque problems. $T = Fd$ or $T = mgd$ and balanced torque $m_1d_1 = m_2d_2$

Know how to work centripetal force problems $F_c = mv^2 / r$

Know how to work universal gravitation problems $F_g = Gm_1m_2 / d^2$

$G = 6.67 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$