Circular Motion Activity Name: _____

Instructions

For the following activity you will need to log on to: **vip.vast.org/Circ_Lab/**

You will complete a set of calculations for the Ferris Wheel and the Anti-Gravity Ride.

In each set of calculations must use scientific units:

Force (F) is measured in _____

Mass (m) is measured in _____

Time (s) is measured in _____

Acceleration (a) is measured in _____

Distance/Radius (r) is measured in _____

You may need to use multiple equations to get the information you need.

As a reminder:

$v = d/t$

$C = 2\pi r$

$a_c = v^2/r$

$F_c = ma_c$

For each question, show your work in the space provided below the question. Then, write your answer (with units) on the line provide. To correctly show your work and receive full credit you must show the following:

1) Literal Equation (as shown above)
2) Equation rewritten with the correct numbers substituted
3) Answer with units

Ex: $v = \frac{d}{t} = \frac{15\ m}{30\ s} = 0.5$ m/s

FERRIS WHEEL

QUESTIONS AND PROCEDURE:

2.1) Use the stopwatch to measure the period of motion for the ferris wheel. What is it's period? _____

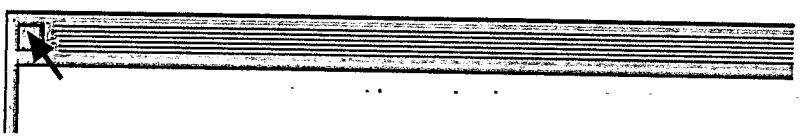
2.2) Calculate it's tangential velocity: _____

2.3) Calculate its centripetal acceleration: _____

2.4) Calculate It he mass of a rider is 65 kg, the what is the centripetal force exerted by the ferris wheel? _____

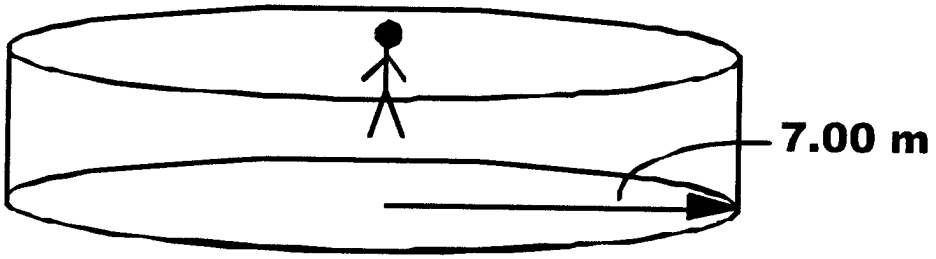
2.5) The term centripetal force is a generic term. If you were to talk about gravity, you would know that only mass exerts a gravitational force. But a "centripetal force" can be exerted by many different things. What is supplying the centripetal force to keep the seat the rider is in going in a circle at the bottom of the motion?

_____



STATION 2: THE ANTIGRAVITY RIDE

Find a computer displaying the circular motion page. Select the Anti-Gravity Ride. Press the PLAY button to see the animation.



4.1) Use the stopwatch to measure the period of motion for the ride wheel. What is it's period? _____

4.2) Calculate it's tangential velocity: _____

4.3) Calculate its centripetal acceleration: _____

4.4) If he mass of a rider is 55 kg, the what is the centripetal force exerted by the ride wheel? _____

4.5) The term centripetal force is a generic term. If you were to talk about gravity, you would know that only mass exerts a gravitational force. But a "centripetal force" can be exerted by many different things. What is supplying the centripetal force to keep the seat the rider is in going in a circle at the bottom of the motion? _____