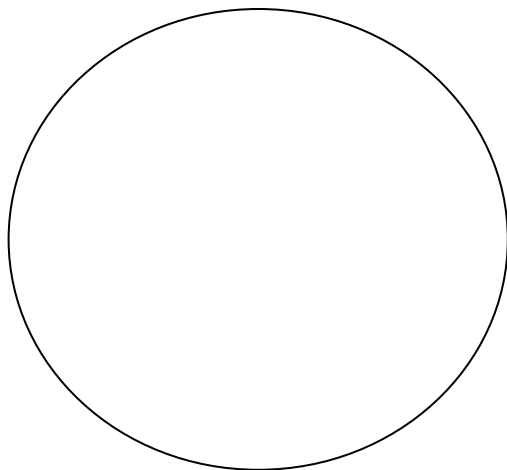


Name \_\_\_\_\_

## Chapter 7 Circular Motion; Intro Lecture

**Directions: Complete this worksheet according to the lecture**

Draw a diagram of the demonstration



What keeps an object moving in a circular path? \_\_\_\_\_

What are the some causes of this force?

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If the stopper is moving at 2 m/s and this velocity is constant, how can there be acceleration?

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In what direction does the acceleration vector point? Is the acceleration uniform (constant)?

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What path does the stopper take if we cut the string? Draw this on the diagram. \_\_\_\_\_

Do the force vector and acceleration vector point in the same direction? Why? \_\_\_\_\_

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What do we call the force in circular motion? What does this name mean? \_\_\_\_\_

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What is centrifugal force? \_\_\_\_\_

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Here are the equations you need to know.



Combine these equations and expand

1. What happens to the force tension if we double the mass and keep the velocity the same?
2. What happens to force tension if we double the velocity?
3. Half the velocity?
4. Double the length of the string?

### **Practice Problems**

1. What is the centripetal acceleration for a 4 kg baseball attached to a 2 m string with a force tension of 25 N in the string?

What is the speed of the baseball?

2. A ball with mass 3.7 Kg is attached to a 1.1 m string and is swung in a circular motion.

What is the acceleration of the stopper if it makes 1 revolution every 0.6 seconds?

What is the force tension in the string?

What is the speed of the ball?