y   y   envelope -- no damping

x   5   10   15 sec   t

envelope -- no damping

5

10

15 sec

t

x

1.) Draw projection of the ball onto the y assuming it takes 20 seconds for the ball to make one complete revolution.

2a.) Write the general equation for the ball's vertical component as a function of time.

2b.) Write the specific equation for the ball's vertical component as a function of time.

3.) Draw projection of the ball onto the x assuming it takes 20 seconds for the ball to make one complete revolution.

4a.) Write the general equation for the ball's horizontal component as a function of time.

4b.) Write the specific equation for the ball's horizontal component as a function of time.

5.) Draw the omega vector (ω)in the circular drawing above left that represents the dot moving in a counter clockwise direction.

6a.) So the y vs. t above ends up being a sine wave and the x vs. t ends up being a cosine wave. What is the difference between the sine wave and the cosine wave?

6b.) Complete the following sentence: For the graphs above, the max amplitude of the y component of the ball's position lags behind the max amplitude of the x component by _____ radians or _____ degrees and, in this case, _____ seconds

7.) We said it takes 20 seconds to complete one revolution. This is called the **period** of ball. It's symbol is T_p. What is the relationship between ω and T_p?