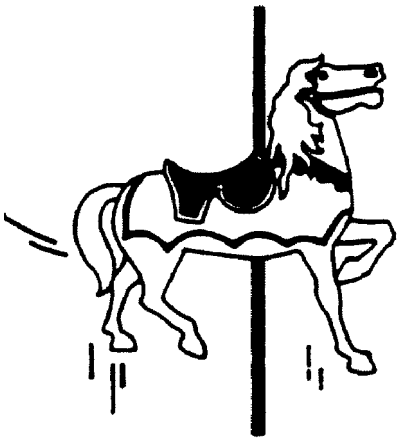
QUALITATIVE QUESTIONS



For the following questions, consider a horse that moves up and down.

1. Which horses, those on the inside or those on the outside, have the greatest tangential speed? Explain.

2. How does the angular speed of an outer horse compare to that of an inner horse?

3. While the ride is revolving at a constant angular speed, place a foam ball on the carousel. Describe the path that it takes.

4. What types of acceleration do people riding on the carousel experience?

5. Record the vertical Force Factor reading when ascending and descending.

QUALITATIVE QUESTIONS (continued)

6. Record the horizontal Force Factor reading as directed along the radius of the ride (point one end of the force factor meter to the center of the carousel and the other end to the outside). Is this force directed inward or outward?

7. What happens to the centripetal acceleration as the distance from the center of the carousel increases? How is your answer supported by your observations from the previous question?

8. Consider the two components of your motion (relative to the ground) while riding the carousel. At what point is your resultant speed the greatest?

9. From the point of view of someone watching the ride from outside of the ride, determine the shape of the horse's path as viewed:
   a. from above the ride

   b. from the side

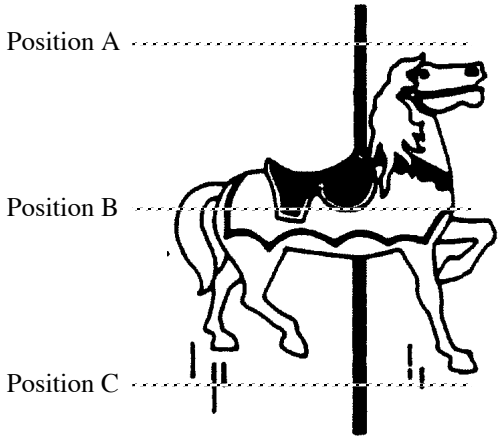
QUANTITATIVE QUESTIONS

NOTE: For the following questions, consider a horse that moves up and down, not the ones that stay in place.

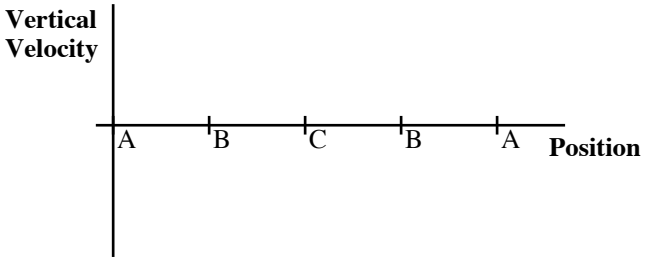
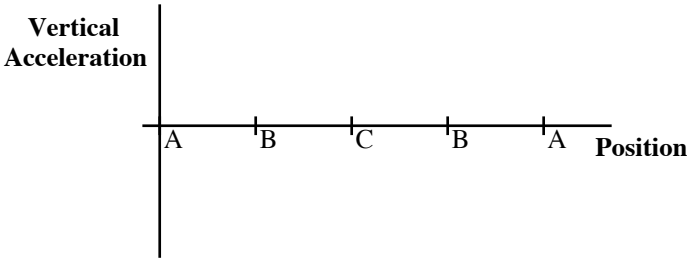
1. Determine the time for:
   a. One revolution of the carousel

   b. One complete up and down cycle of a horse

2. Consider the diagram of the horse to the right. Assume that position A is the highest position of the horse, position B is the midpoint of the horse's motion and that position C is the lowest position of the horse.



   a. Sketch a graph of vertical velocity as a function of position on the set of axes below:



   b. Sketch a graph of vertical acceleration as a function of position on the set of axes below: