

TIDAL WAVE

This swinging boat ride is a great example of an everyday pendulum. It swings back and forth reaching a maximum height of 20 meters (approximately 66 feet) allowing the riders to feel a sense of weightlessness. While waiting in line, find out the relationship between this pendulum action, simple harmonic motion, and waves.



Questions

1. Face the side of the boat and draw a graph of the position action.
2. Continue facing the side of the boat and draw another graph of the position action but this time add time. Keep your drawing hand stationary and with the other hand pull the paper perpendicular to your drawing hand's motion. Do this for the first four complete swings.
3. Now face the front of the boat and draw a graph of its position action.
4. Continue facing the front of the boat and draw another graph of its position action but this time add time. Keep your drawing hand stationary and with the other hand pull the paper perpendicular to your drawing hand's motion. Draw the last five swings of the ride.
5. How do the graphs of questions one and three compare and differ? (b) How do the graphs of questions two and four compare and differ? (c) What type(s) of motion does each graph represent? (d) If the ride took approximately 20 seconds, label the period, amplitude, wavelength, and frequency on the graph of question four with the correct symbols.