

QUALITATIVE QUESTIONS

1. Your weight doesn't change while riding The Joker, but your *sensation* of weight does change while on the ride. What force is responsible for your *sensation* of weight?
2. Describe your *sensation* of weight for each position (greater than, less than or equal to F_g):
 - a. at rest
 - b. moving through the lowest point
 - c. at the highest point
3. At what points on the ride is the force on your back (not the force on your bottom) equal to zero?
4. Does your answer to this question depend on whether you are moving forwards or backwards?

QUALITATIVE QUESTIONS (continued)

4. To feel the lightest, should you sit closer to the ends of the boat or closer to the middle of the boat? Explain your response.
5. Determine the period (T) of the ride by timing one back and forth swing:
- a. for a small initial oscillation $T =$ _____ seconds.
 - b. for a large maximum oscillation $T =$ _____ seconds.
 - c. Was the period affected by the size of the oscillations? Explain.
6. At what point during the swing of the ride is greatest gravitational potential energy the largest and at what point of the swing is the kinetic energy the largest?
7. How do the points of greatest gravitational potential energy compare to: (the same) or (different than)
- a. points of lowest accelerometer readings _____
 - b. points of maximum accelerometer readings _____
 - c. points of minimum velocity _____
 - d. points of maximum velocity _____
8. How do the points of greatest kinetic energy compare to: (the same) or (different than)
- a. points of lowest accelerometer readings _____
 - b. points of maximum accelerometer readings _____
 - c. points of minimum velocity _____
 - d. points of maximum velocity _____
9. What two types of forces are acting on you during the ride?
- a. _____ b. _____
10. Does the number of people on the ride alter any results or conclusions? Explain!

**QUANTITATIVE
QUESTIONS**

1. Determine the period of the ride by timing one back-and-forth swing.



2. Align your Force Factor meter **head-to-toe** and record the maximum swing readings:
 - a. moving forward through the lowest point _____
 - b. at the highest point _____
3. Align your Force Factor meter **front-to-back** and record the maximum swing readings:
 - a. moving forward through the lowest point _____
 - b. at the highest point _____
4. Is the point in the ride's swing where you are moving the fastest the same for every seat? Explain!
5. Where did the maximum Force Factor occur? Is this point the same for every seat? Explain!
6. Are the maximum and minimum Force Factor readings the same for every seat? Explain!