

**IB Physics**  
**FA 5.2 - Vertical Circle**

Name \_\_\_\_\_

Show your work, round to the correct significant figures, circle your answers, and label them with units. Use the convention that up is positive.

When you have finished this, go to the website and check your answers. If you got a problem wrong, cross it off on the front, and do it correctly on the back.

1. A carnival ride moves at a constant speed in a vertical circle. If the riders are feeling 0.85 "g"s inverted at the top, what "g"s do they feel at the bottom, and what is the actual centripetal acceleration of the ride in "g"s? (Be sure to answer both questions)

2-3: A 2.50 kg mass moves at a constant speed in a vertical circle at the end of a 0.310 m long rod with a period of 1.30 s.

2. What force in what direction does the rod exert at the top?

3. What force in what direction does the rod exert at the bottom?

4-5: A 1.20 kg mass moves in a 0.45 m radius circle at a constant speed. At the top this requires a downward force of 5.75 N

4. What is its velocity?

5. What force in what direction is required at the bottom?