

Revolution of Jupiter's Moons

Turn in one copy of this lab with each group member's printed name and signature. By signing, you certify that you have actively participated in the exercise and have put forth effort in equal share to your fellow group members.

Printed Name

Signature

1. Io is the closest moon to Jupiter. How can you tell which one is Io (aside from randomly clicking to find out)?
2. Compare Io's motion when it is close to Jupiter to when it is far from Jupiter.
3. Why does Io appear to move this way? (*Hint: what would their orbits look like if you viewed them from above?*)

After making the graphs

4. Was it easier to draw the curve for Callisto or for Europa? Why?
5. Can you draw a curve for Io? What could you do observationally to make it easier to find Io's curve?

Table 1

Moon	a (Jupiter diameter)	P (days)	a (A.U.)	P (years)
Io				
Europa				
Ganymede				
Callisto				

Table 2

Moon	Mass of Jupiter (solar masses)
Io	
Europa	
Ganymede	
Callisto	
Average	

6. Compare the answers you got for the mass of Jupiter from the different moons. Did you get similar or different answers?
7. The mass you finally found is in units of *solar masses*. In other words, Jupiter is about $1/1000^{\text{th}}$ the mass of the sun. Do you think Jupiter is big enough for its mass to matter when using Kepler's 3rd Law to find the mass of the Sun? Why or why not?