

*You Can Weigh Jupiter*

Lab Worksheet

Instructor Initial:

Name: \_\_\_\_\_

Section: \_\_\_\_\_

Lab partners: \_\_\_\_\_

1. Attach your table of observational data.
2. Attach your plot of position of the satellite vs. time.
3. To compute the mass of Jupiter you will apply Kepler's Law (modified by Newton). The units to be used in the formula must be in years and AU. Using the values obtained from the plotting of the data, compute the orbital period (in years) and the semi-major axis (in AU) of the satellite assigned to you. The orbital period is the period of the curve. The semi-major axis is the amplitude of the curve. Read the instructions in "Your Report" on page 8.3.

T (period): \_\_\_\_\_ days

(To convert from period in days to period in years, you need to divide by 365.25)

T (period): \_\_\_\_\_ years

a (semi-major axis): \_\_\_\_\_ Jupiter (Jovian) diameters

(To convert from semi-major axis in Jovian diameters to the semi-major axis in AU, you will need to divide by 1050)

a (semi-major axis): \_\_\_\_\_ AU

Note: for all calculations **show your work** and give your answer in **correct units** and with no more than 3 decimal points.