

AP Physics Lab #10 – Kepler’s Third Law

Name _____

Grade _____

Objective: To perform a graphical analysis that shows the planets obey Kepler’s Third Law.

In the table below you will find the period and length of the semi-major axis of orbit for the planets in our solar system that were known to Kepler as he derived his laws. Using Graphical Analysis, produce a linear graph that shows they obey Kepler’s Third Law

$$T^2 = kR^3$$

Be sure to identify k from your graph and explain why it matches the constant from the law.

Planet	Period (days)	Semi-Major Axis (AU)
Mercury	87.77	0.389
Venus	224.70	0.724
Earth	365.25	1.000
Mars	686.96	1.524
Jupiter	4332.62	5.200
Saturn	10759.20	9.510