

KEPLER/NEWTON EXERCISES

Kepler's Law 2: Calculate the YEAR of the following planets

$$P^2 = D^3$$

A. Mercury 's (Period)² = Mercury's (Distance)³

$$\text{Mercury 's (Period)}^2 = (0.4 \text{ AU})^3$$

$$\text{Mercury 's (Period)}^2 = \underline{\hspace{2cm}}$$

$$\text{Mercury 's Period} = \underline{\hspace{2cm}}$$

B. Saturn's (Period)² = Saturn's (Distance)³

$$\text{Saturn's (Period)}^2 = (\underline{\hspace{1cm}})^3$$

$$\text{Saturn's (Period)}^2 = \underline{\hspace{2cm}}$$

$$\text{Saturn's Period} = \underline{\hspace{2cm}}$$

C. Pluto's (Period)² = Pluto's (Distance)³

$$\text{Pluto's (Period)}^2 = (\underline{\hspace{1cm}})^3$$

$$\text{Pluto's (Period)}^2 = \underline{\hspace{2cm}}$$

$$\text{Pluto's Period} = \underline{\hspace{2cm}}$$

Newton's Universal Law of Gravitation: Calculate the Gravitational Force

A. **If Mass increases, then Grav. Force** _____ **directly.**

If Mass doubles, then gravitational force _____.

If Mass triples, then gravitational force _____.

If Mass increases by half, then gravitational force _____.

B. **If Distance increases, then Grav. Force** _____ **indirectly.**

If Distance doubles, then Gravitational Force _____.

If Distance triples, then Gravitational Force _____.

If Distance increases by four, then Gravitational Force _____.