



$$\frac{X^2}{a^2} + \frac{Y^2}{b^2} = 1$$

$$a^2 - b^2 = c^2$$

a = mean distance

$2c$ = aphelion - perihelion

c = mean distance - perihelion

This gives us $\text{Perihelion} = 2(\text{mean distance}) - \text{Aphelion}$