

### Simple pendulum Formulas

$T = 2\pi \sqrt{\frac{L}{g}}$	Solve for period.
$L = \frac{T^2 g}{4\pi^2}$	Solve for length.
$g = \frac{4\pi^2 L}{T^2}$	Solve for acceleration of gravity

T is the period of a pendulum and is measured in seconds.

L is the length of the pendulum in meters

g is the gravitational field strength, or acceleration due to gravity

This quantity at sea level is 9.81 m/sec<sup>2</sup>

What would be the period of a pendulum located at sea level if it is 1.5 meters long?

If the pendulum's length were to be shortened to one-fourth its original value, what would be its new period?

How many complete swings would this shorter pendulum trace out in one minute?

At sea level, how long would a pendulum be if it has a frequency of 2 hz or seconds?

Gravity on other planets:

Sun	274	Venus	8.9
Jupiter	24.9	Mars	3.7
Neptune	13.2	Mercury	3.6
Saturn	10.4	Moon	1.6
Earth	9.8	Pluto	0.6
Uranus	10.5		

Shira was suddenly transported to a large windowless room. Fortunately she had her handy table of planetary gravities. Curious about where she was she whipped up a pendulum with a 0.5m string and a steel ring. She swung it back and forth and found out it had a period of 3.6 seconds. Where in the solar system was she?