On planet fro a pendulum of length 0.79 m and mass 450 g is set-up to measure the force due to gravity of the planet. The period is recorded and the acceleration due to gravity calculated.

Data:

| Trial # | Value (s) |
|---|---|
| 1 | 2.14 |
| 2 | 2.20 |
| 3 | 2.09 |
| 4 | 2.11 |
| 5 | 2.12 |
| 6 | 2.15 |

What is the acceleration due to gravity on the planet?

$$T = 2\pi\sqrt{\frac{L}{g}}$$

$$\frac{T}{2\pi} = \sqrt{\frac{L}{g}}$$

$$\frac{T^2}{2^2\pi^2} = \frac{L}{g}$$

$$g = \frac{L}{\frac{T^2}{4\pi^2}} = \frac{4\pi^2 L}{T^2}$$

| Trial | T (s) | g ($m/s^2$) |
|---|---|---|
| 1 | 2.14 | 6.81 |
| 2 | 2.20 | 6.44 |
| 3 | 2.09 | 7.14 |
| 4 | 2.11 | 7.01 |
| 5 | 2.12 | 6.94 |
| 6 | 2.15 | 6.75 |

$6.85\ m/s^2$ average value