2. Using the expression from Question 1, calculate and **fill in the values for the 5th column** in the table above. Ensure you display the values to the correct number of **significant figures**.

**Show workings** for the calculation you performed to determine acceleration of **Tiros**.

$$a = \frac{4\pi^2 (0.722\times10^7)}{(6120)^2} = 7.61\ m s^{-2}$$

(1) Correct variables
(1) Calculation for Tiros
(2) Fill in rest of table [minus (1) for each error]
(1) Correct sig fig

**(5 marks)**

3. Fill in the values of **uncertainty** associated with Tiros in the table below.

Using this information **calculate** the **percentage uncertainty (%)** and **absolute uncertainty** for the acceleration of Tiros.

| Quantity | | Absolute Uncertainty | Percentage Uncertainty (%) |
|---|---|---|---|
| Orbital Radius (x$10^7$ m) | 0.722 | (1) 0.0005 | (1) 0.069 |
| Period (s) | 6120 | (1) 5 | (1) 0.081 |

$\frac{0.0005\times100}{0.722} = 0.069\%$

$\frac{5\times100}{6120} = 0.081\%$

Uncertainty %$a_{Tiros}$ = $0.069 + 0.081 + 0.081 = 0.231\%$ (1)

Abs uncertainty = $0.018$

**Ans:** % Uncertainty acceleration: _____

**Ans:** Absolute Uncertainty acceleration: _____

**(6 marks)**

4. Complete the **6th column of the table** on page 1, by calculating the values of **inverse of radius squared**. Clearly show the units by writing them at the top of that column.

Units : $\times10^{-14}$ (1) $m^{-2}$ (1)

**(4 marks)**

Values : (2) [minus (1) for each wrong value