2 The time T for a satellite to orbit the Earth is given by

$$T = \sqrt{\left(\frac{KR^3}{M}\right)}$$

where R is the distance of the satellite from the centre of the Earth,
M is the mass of the Earth,
and K is a constant.

For Examiner's Use

(a) Determine the SI base units of K.

SI base units of K ..... [2]

(b) Data for a particular satellite are given in Fig. 2.1.

quantity	measurement	uncertainty
T	8.64×10^4 s	± 0.5%
R	4.23×10^7 m	± 1%
M	6.0×10^{24} kg	± 2%

Fig. 2.1

Calculate K and its actual uncertainty in SI units.

K = ... ± ..... SI units [4]