Practical Standard Form

(a)

The table shows the diameter of some planets in the solar system.

Planet	Diameter (km)
Earth	1.3×10^4
Mercury	4.8×10^3
Neptune	4.9×10^4
Saturn	1.2×10^5

(i) Calculate the difference, in km, between the diameter of Earth and the diameter of Saturn. Give your answer in standard form.

(ii) The diameter of Neptune is k times bigger than the diameter of Mercury. Find the value of k to 1 decimal place.

(iii) Find the ratio of the diameter of Saturn to the diameter of Mercury in the form $n : 1$

(b)

The table shows the populations of some European countries.

Country	Population
Belgium	1.16×10^7
Estonia	1.33×10^6
Iceland	3.41×10^5
Russia	1.46×10^8

(i) Calculate the total population of these four countries. Give your answer in standard form to 3 significant figures.

(ii) How many more people live in Estonia than live in Iceland? Give your answer in standard form.

(iii) Calculate the ratio of the population of Belgium to the population of Russia. Give your answer in the form $1 : n$, where n is rounded to 1 decimal place.

(c)

The table shows the areas in square kilometres of four Asian countries.

Country	Area (km^2)
China	9.6×10^6
Hong Kong	1.11×10^3
Japan	3.78×10^5
Pakistan	7.96×10^5

(i) Calculate the total area of China, Japan and Hong Kong. Give your answer in standard form to 3 significant figures.

(ii) Calculate the difference in area between China and Pakistan. Give your answer in standard form.

(iii) The population of Hong Kong is $7.48\ million$. Find the population density of Hong Kong to the nearest integer, where:

$$Population\ density = Population \div Area$$