Scientific Notation

1. Write each of the following in Scientific Notation.

(a) 31 000 000	(b) 206 000	(c) 0.000 056	(d) 0.000 312
(e) 0.000 000 4	(f) 44 800 000 000	(g) 0.00312	(h)16 million
(i) 126 000 000	(j) 0.000 000 6	(k) 3.6 million	(l) 0.000325

2. Write each of the following as ordinary numbers.

(a) 2.31×10^{6}	(b) 2.1×10^{5}	(c) 4.634×10^{-4}	(d) 6.5×10^{9}
(e) 4×10^{6}	(f) 9.3×10^{-5}	(g) 3×10^{-8}	(h) 5.75×10^{8}
(i) 3.667×10^{10}	(j) 4.2×10^{-9}	(k) 7×10^{-3}	(l) 2.3×10^{12}

3. The table below shows the distances from each planet in our solar system to the Sun. Write all these distances in Scientific Notation.

Planet	Average Distance from the Sun (kilometers)
Sun	N/A
Mercury	57,909,000
Venus	108,200,000
Earth	149,600,000
Mars	227,940,000
Jupiter	778,400,000
Saturn	1,423,600,000
Uranus	2,867,000,000
Neptune	4,488,400,000
Pluto	5,909,600,000

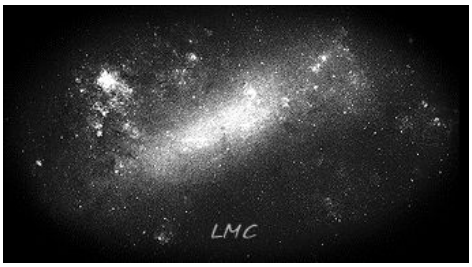
4. (a) Newton's constant of gravitation is 6.674×10^{-11}. Write this as an ordinary number.

(b) In Science the Magnetic Constant is 1.257×10^{-6}. Write this as an ordinary number.

(c) The speed of light in a vacuum is 2.998×10^{8} metres per second. Write this as an ordinary number.

(d) A light year is a distance of 9.46×10^{12} kilometres. Write this as an ordinary number.

(e) The large Magellanic cloud is 1.69×10^{18} kilometres from Earth. Write this distance as an ordinary number.



5. Carry out the following calculations, writing your answer in Scientific Notation.

(a) $3.2 \times 10^7 \times 2$ (b) $6.13 \times 10^8 \times 5$ (c) $2.2 \times 10^{10} \times 8$

(d) $3.15 \times 10^7 \times 30$ (e) $4.65 \times 10^5 \times 60$ (f) $3.7 \times 10^6 \times 50$

(g) $7.32 \times 10^{-5} \times 4$ (h) $5.32 \times 10^{-8} \times 9$ (i) $5.55 \times 10^{-4} \times 40$

(j) $2.6 \times 10^{-5} \times 30$ (k) $4.32 \times 10^{-9} \times 400$ (l) $7.15 \times 10^{-10} \times 300$

(m) $3.75 \times 10^8 \div 3$ (n) $6.85 \times 10^9 \div 5$ (o) $4.48 \times 10^6 \div 8$

(p) $2.56 \times 10^{-7} \div 2$ (q) $1.32 \times 10^{-8} \div 4$ (r) $8.55 \times 10^8 \div 50$

(s) $7.2 \times 10^{10} \div 60$ (t) $4.56 \times 10^{-6} \div 80$ (u) $2.34 \times 10^{-7} \div 90$

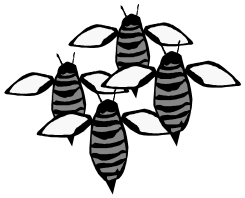
6. Give the answers to the following in Scientific Notation.

(a) A rocket travels at a speed of 3.65×10^5 kilometres per hour. How far will the rocket travel in 6 hours.

(b) A magazine has a thickness of 1.36×10^{-4} metres. The magazine contains 80 sheets of paper. Calculate the thickness of one sheet of paper.

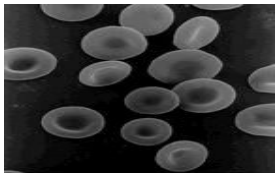
(c) A comet travels a distance of 7.55×10^7 kilometres in 20 hours. Calculate the speed of the comet in kilometres per hour.

(d) A British company in 2007 made a profit of £1.65×10^6 per minute. Calculate the profit they made each hour.



(e) A beekeeper has 2.46×10^4 bees spread equally among 6 hives. How many bees are in each hive?

(f) A tank of water contains 3.15×10^4 bacteria. The volume of water in the tank is 70 m^3. Calculate the number of bacteria in 1m^3 of water.



(g) An average adult with 10 pints of blood has approximately 2.46×10^{12} red blood cells in their body. How many red blood cells are in each pint of blood?

(h) A blonde haired person has on average 1.44×10^5 hairs on their head. Calculate the number of hairs per cm^2 on a person whose scalp has an area of 80 cm^2.