

Key Vocabulary	
Prime Number	Has exactly two different factors (1 and itself)
Prime Factor	A prime number that divides exactly into the given number
Prime Factorisation	Finding the factors of a number that are all prime
Product	Product means multiply
Highest Common Factor (HCF)	Largest factor common to two given numbers
Lowest common Multiple (LCM)	Smallest multiple common to two given numbers
Standard form $5\,700\,000 = 5.7 \times 10^6$ $0.0076 = 7.6 \times 10^{-3}$	A way of writing down very large or very small numbers easily A number in standard form is a number between 1 and 10 multiplied by a power of 10
Significant figure (S.F) $6423 = 6000$ to 1 S.F $0.0075 = 0.008$ to 1 S.F	The first non-zero digit which tells you the size of a number, the most significant digit
Square $3^2 = 3 \times 3 = 9$	A number times by itself equals a square number
Cube $2^3 = 2 \times 2 \times 2 = 8$	A number times by itself three times equals a cube number

Key facts / Diagrams

Express 90 in terms of its products prime factors

$90 = 2 \times 3 \times 3 \times 5$
 $90 = 2 \times 3^2 \times 5$

Venn Diagram
What prime factors are in both 24 and 60?

2, 2 and 3

Significant figures Examples:

$87000 = 90000$ to 1 s.f.
 $123.456 = 100$ to 1 s.f.
 $0.00038 = 0.0004$ to 1 s.f.

Rules for negative numbers

Addition/subtraction	+	-	-
$3 + -2 = 1$	$3 - -2 = 5$	-	+
$-5 + -2 = -7$	$-5 - -2 = -3$	-	+
Multiplication/division			
$+ve \times -ve = -ve$	$-ve \times +ve = -ve$	$-ve \times -ve = +ve$	
$+ve \div -ve = -ve$	$-ve \div +ve = -ve$	$-ve \div -ve = +ve$	

Common misconceptions

- 1 is not a prime number
- Some pupils may think rounding 34 934 to one significant figure is 3. Correct answer is 30 000
- When converting between ordinary and standard form, some students incorrectly connect the power to the number of 0's
 $4.2 \times 10^5 = 4\,200\,000$ (incorrect)
BUT this is 4 20 000

Worked examples

1. Using the prime factorisation method find the HCF and LCM of 32 and 80.

HCF = $2 \times 2 \times 2 \times 2 = 16$
LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 5 = 160$

2. Write the following in standard form
a) $531\,000 = 5.31 \times 10^5$
b) $0.0082 = 8.2 \times 10^{-3}$

3. Write the following as ordinary numbers
a) $3.7 \times 10^4 = 37\,000$
b) $1.92 \times 10^{-2} = 0.0192$

4. Round the following to 1 S.F.
a) $683\,100 = 700\,000$
b) $0.008294 = 0.008$