

**CHAPTER
1****Primes,
HCF & LCM**

1) Prime number : a whole number that has exactly _____ factors, _____ and _____.

Eg:

2) Composite number : a whole number that has more than _____ factors.

Eg:

Note:

☐ and ☐ are neither prime nor composite

3) Prime factorisation means writing a composite number as a product of its _____.

Eg: Find the prime factorisation of 24.

Eg: Express 24 as a product of its prime factors in index notation.

} same question,
asked differently.

4) Perfect square :

- A whole number whose _____ is a _____. (use calculator to check)
- A whole number that can be written as a whole number $\times$ the same whole number.
- A whole number in which the _____.

Eg:

5) Perfect cube :

- A whole number whose _____ is a _____. (use calculator to check)
- A whole number in which the _____.

Eg:

Eg: 7^3

↑ index
↑ base

Singular : | Plural :
index | indices
("power")

6) Highest Common Factor (HCF) and Lowest Common Multiple (LCM)

Eg: Find the HCF and LCM of 36, 54, 90

Method 1

Method 2

7) Tips when solving real-world context questions:

When unsure whether to find LCM or HCF, look at what you need to find first.

- If you need an answer _____ than the given numbers → Find _____
(eg: cutting tiles, dividing groups, splitting items)
- If you need an answer _____ than the given numbers → Find _____
(eg: finding a future date, next meeting time)

Sec 1 Chapter 1 – Primes, HCF and LCM**Must know questions:**

1 (a) Express 3969 as a product of its prime factors in index notation.

(b) Hence, find the value of $\sqrt{3969}$.

(c) Find the smallest value of k such that $3969k$ is a perfect cube.

2 Given that $2646 = 2 \times 3^3 \times 7^2$,

(a) Is 2646 a perfect cube? Explain your answer.

(b) Find the smallest possible value of m and n such that $\frac{2646m}{n}$ is a perfect square, where $n > m$.

- 3 Written as a product of its prime factors, $600 = 2^3 \times 3 \times 5^2$.
- (a) Find the largest integer that can divide both 135 and 600.
- (b) Find the smallest positive integer n for which $600n$ is a multiple of 54.
- 4 The highest common factor and lowest common multiple of two numbers are 42 and 252 respectively. The two numbers are greater than 50. Find the two numbers.

- 5 Mrs Lim bought 56 pencils, 84 erasers and 112 notebooks for her students. She plans to distribute the items equally to her students.
- (a) Find the largest number of students in her class.
- (b) How many of each item will each student receive?
- 6 The school bell rings every 9 minutes, and the cafeteria bell rings every 12 minutes. If they both ring together for the first time at 08 35, at what time will they next ring together?

- 7 A rectangular function room has dimensions 1260 cm by 1080 cm.
A worker needs to cover the entire floor with the smallest number of identical square carpet tiles.
- (a) Find the length of the side of each square carpet tile.

(b) How many of square carpet tiles will the worker use in total?