■ HCF & LCM Concept Notes

■ What is HCF (Highest Common Factor)?

HCF is the greatest number that divides two or more numbers exactly. It represents the largest common factor shared among the numbers.

■ Example:

Find HCF of 12 and 16.
Factors of 12 = 1, 2, 3, 4, 6, 12
Factors of 16 = 1, 2, 4, 8, 16
Common factors = 1, 2, 4 → HCF = 4

■ What is LCM (Least Common Multiple)?

LCM is the smallest number that is exactly divisible by two or more numbers. It represents the least multiple common to all given numbers.

■ Example:

Find LCM of 12 and 16.
Multiples of 12 = 12, 24, 36, 48, 60, …
Multiples of 16 = 16, 32, 48, 64, …
Common multiples = 48, 96, … → LCM = 48

■ Relationship Between HCF and LCM

For any two numbers a and b: ■ a × b = HCF × LCM Example: For 12 and 16 → 12 × 16 = 4 × 48 = 192

■ Quick Trick to Identify Question Type

HCF-based: Words like 'greatest', 'maximum', 'largest number that divides...'
LCM-based: Words like 'minimum', 'least', 'smallest number that is divisible by...'

Examples:
1■■ Find the greatest number that divides 45 and 75 exactly → HCF
2■■ Find the smallest number exactly divisible by 8, 12, and 15 → LCM

■ Practice Tip

Whenever you read a question, focus on whether it asks for something that *divides* or something that *is divisible by* numbers. ‘Divides’ = HCF, ‘Divisible by’ = LCM.