

Factors multiples and primes

Pearson Edexcel GCSE Mathematics 1MA1 • L005

Foundation and Higher • Lesson resources

REACH FOR THE STAR | GCSE MATHEMATICS

Purpose

Find and justify factors, prime factorisations, HCFs and LCMs; choose the right structure for a problem.

Vocabulary

Factor: divides a whole number exactly. Multiple: an integer times a number. Prime: integer greater than 1 with exactly two positive factors. HCF: highest common factor. LCM: lowest common multiple.

Why the method works

Factors come in pairs: $18 = 1 \times 18 = 2 \times 9 = 3 \times 6$. After pairs cross, no new factors appear. A prime factorisation splits until every factor is prime; $18 = 2 \times 3 \times 3$. Different valid splits give the same prime factors.

Method and checking

List factors in pairs. For HCF select prime factors shared by both numbers, with the smaller powers. For LCM include every prime needed, with the larger powers. Check that HCF divides both and LCM is divisible by both.

Common errors and next attempt

If 1 is called prime, count its positive factors. If factors and multiples are swapped, use $3 \times 6 = 18$ in both directions. If HCF and LCM are confused, ask whether the answer must divide or be divisible by each number. Recheck $\text{HCF}(8,12)=4$ and $\text{LCM}(8,12)=24$.