

Topic 1: Number

AQA GCSE Mathematics 8300 · spec 3.1 · sheets 1.1–1.3

The number toolkit

- Number — the foundations everything else stands on.
- Order and calculate — integers, decimals, fractions, negatives.
- Primes and structure — HCF, LCM by decomposition.
- Indices, standard form, bounds — the higher-tier machinery.

Ordering and the four operations

- Number line — right is greater; negatives below zero.
- Fractions — common denominator, invert to divide, improper for mixed.
- BIDMAS — brackets, indices, then left-to-right multiply-divide.

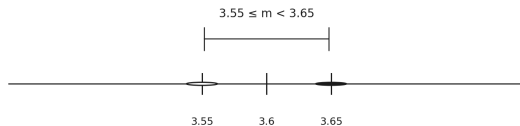
Primes, HCF and LCM

- Decompose — $200 = 2^3 \times 5^2$; every integer, one way.
- HCF — lowest powers of common primes; LCM — highest powers of all.
- (H) the product rule for counting.

Indices and surds

- Multiply — add the indices; divide — subtract; power of a power — multiply.
- Negative index — reciprocal; $a^{1/2}$ is the square root.
- (H) simplify surds and rationalise denominators.

Standard form and bounds

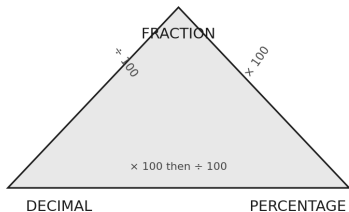


$m = 3.6$ to 1 decimal place: closed at the lower bound, open at the upper

- $A \times 10^n$, $1 \leq A < 10$ — multiply the As, add the ns.
- Estimate — round each to one significant figure.
- (H) 3.6 to 1 dp means $3.55 \leq m < 3.65$.

FDP and multipliers

$1/2 = 0.5 = 50\%$ — every vertex names the same number



- Fractions, decimals and percentages (N10–N13, R9 links).
- One number, three names — fraction, decimal, percentage.
- Increase 15% — multiply by 1.15; reverse — divide.
- (H) recurring decimals to fractions — multiply by 10 or 100, subtract.

Check yourself

- Checklist before you call this topic done.
- Cold — four operations on mixed numbers; HCF/LCM from decomposition.
- Index laws; standard form arithmetic; bounds; reverse percentages.