

Class 6 Maths: Quick Revision and Formula Sheet

Key ideas, rules and formulas for every topic, in one place. Print it and keep it beside your notebook.

1. Numbers and place value

- Indian place values: ones, tens, hundreds, thousands, ten thousands, **lakhs**, ten lakhs, **crores**.
Example: 7,45,32,610 is seven crore forty-five lakh thirty-two thousand six hundred ten.
- To compare numbers: the number with more digits is bigger; if the digits are equal, compare from the left.
- Estimation: round to the nearest ten, hundred or thousand to check your answer quickly.
- Whole numbers start at 0; natural numbers start at 1. Zero is the only whole number that is not natural.

Commutative: $a + b = b + a$ and $a \times b = b \times a$ | Distributive: $a \times (b + c) = a \times b + a \times c$

2. Integers (the other side of zero)

- Integers are ... -3, -2, -1, 0, 1, 2, 3 ... Positive numbers lie to the right of 0 on the number line, negative to the left.
- Greater numbers are always to the right. So $-2 > -5$.
- Opposite of 7 is -7; opposite of -4 is 4.

Tip: Think of a lift, a thermometer or a bank balance to feel how negative numbers behave.

3. Factors, multiples, primes

- A **prime** number has exactly two factors (1 and itself): 2, 3, 5, 7, 11, 13. 2 is the only even prime. 1 is neither prime nor composite.
- Composite** numbers have more than two factors: 4, 6, 8, 9, 10. Co-prime numbers have only 1 as a common factor (8 and 15).

Divisible by	Test
2	Last digit is 0, 2, 4, 6 or 8
3	Sum of digits is divisible by 3
4	Last two digits divisible by 4
5	Last digit is 0 or 5
6	Divisible by both 2 and 3
9	Sum of digits is divisible by 9
10	Last digit is 0
11	Difference of sums of alternate digits is 0 or divisible by 11

- HCF** = highest common factor (largest number that divides both). **LCM** = lowest common multiple (smallest number both divide).

$HCF \times LCM = \text{product of the two numbers}$

- Use prime factorisation: split each number into primes, then multiply common primes (HCF) or all primes with the highest powers (LCM).

4. Fractions and decimals

- Proper fraction: numerator < denominator. Improper: numerator $\geq$ denominator. Mixed number: whole part + fraction, e.g. $2\frac{1}{3}$.
- Equivalent fractions: multiply or divide numerator and denominator by the same number.
- Adding and subtracting: make denominators equal using the LCM, then add or subtract numerators.
- Comparing: with equal denominators, the bigger numerator is bigger; with equal numerators, the smaller denominator is bigger.
- Decimals: $0.1 = \frac{1}{10}$, $0.01 = \frac{1}{100}$. Line up decimal points before adding or subtracting.

5. Ratio and proportion

- A ratio compares two quantities of the same kind: $12 : 18 = 2 : 3$ in simplest form.
- Four numbers are in proportion if $a : b = c : d$, that is $a \times d = b \times c$.
- **Unitary method:** first find the value of one unit, then multiply. If 5 pens cost ₹60, 1 pen costs ₹12, so 8 pens cost ₹96.

6. Basic geometry

- A point has position only. A line is endless on both sides; a ray starts at a point and goes on forever; a line segment has two end points.

Angle type	Size
Acute	Less than 90°
Right	Exactly 90°
Obtuse	More than 90° and less than 180°
Straight	Exactly 180°
Reflex	More than 180° and less than 360°

- Complementary angles add to 90° . Supplementary angles add to 180° .
- Triangles by sides: equilateral (3 equal), isosceles (2 equal), scalene (none equal). By angles: acute, right, obtuse.

Sum of the angles of a triangle = 180°

- Circle parts: centre, radius, diameter ($= 2 \times$ radius), chord, arc, sector, segment.

7. Perimeter and area

Shape	Perimeter	Area
Rectangle	$2(l + b)$	$l \times b$
Square	$4a$	$a \times a$
Triangle	$a + b + c$	$\frac{1}{2} \times \text{base} \times \text{height}$
Parallelogram	$2(a + b)$	$\text{base} \times \text{height}$

- Perimeter is the boundary length (unit: cm, m). Area is the surface covered (unit: cm^2 , m^2).

8. Symmetry

- A shape has line symmetry if folding along a line makes the two halves match exactly.
- Lines of symmetry: equilateral triangle 3, square 4, rectangle 2, regular hexagon 6, circle unlimited, scalene triangle 0.

9. Data handling

- Tally marks group in fives. A pictograph uses pictures; a bar graph uses bars of equal width.

Mean (average) = sum of all observations $\div$ number of observations

10. Beginning algebra

- A variable is a letter that stands for a number. An expression like $4a$ means $4 \times a$.
- Perimeter of a square = $4a$; area of a square = $a \times a$, where a is the side.
- An equation is a balance: do the same thing to both sides to keep it balanced.

Tip: In word problems, underline what is given and what is asked. Write the unit in every answer. Re-read the question after solving.

How to revise this class in 10 days

- Days 1-2: numbers, integers, factors. Days 3-4: fractions and decimals. Day 5: ratio and algebra. Days 6-7: geometry. Day 8: perimeter and area. Day 9: data and symmetry. Day 10: mixed test.
- Do 5 questions from your NCERT exercise every day and recheck the mistakes.