

Triangles

CBSE Class 10 Maths · Knowledge organiser

KEY DEFINITIONS

Similar figures

Same shape but not necessarily the same size: equal angles and sides in the same ratio.

Basic Proportionality Theorem

A line parallel to one side of a triangle divides the other two sides in the same ratio.

Criteria for similarity

AA, SSS and SAS similarity show two triangles are similar.

KEY FORMULAS

Basic

Proportionality

Theorem: if $\frac{a}{b} = \frac{c}{d}$ in

Converse: if a line divides two sides in the same ratio, it is parallel to the third side

Similar triangles (AA, SSS, SAS): corresponding angles equal, corresponding sides in the same ratio

Pythagoras
(right angle at)

YOU SHOULD BE ABLE TO...

- You know when figures are similar and can use the Basic Proportionality Theorem to find missing lengths.
- Prove triangles similar using AA, SAS or SSS with a reason for every step, and use the converse of BPT.
- Write the BPT proof and the long 'prove that' answers the board asks, with figure, given, to prove, construction and proof.
- Handle the hard proofs: altitudes, parallelograms with extended sides, and algebraic BPT problems.

WORKED EXAMPLE

____, _____. Then
____.

COMMON MISTAKES

- ✗ Writing $\frac{a}{b} = \frac{c}{d}$ — wrong; use $\frac{a}{c} = \frac{b}{d}$.
- ✗ Matching vertices in the wrong order, leading to wrong side ratios.
- ✗ Using SAS similarity with an angle that is not between the two sides.
- ✗ Claiming two rhombuses/rectangles are similar from sides alone.