If 2 angles of one triangle are congruent to 2 angles of a 2nd triangle, then triangles are similar .

AA ~ *(angle - angle similarity theorem)*

SSS ~ *(side-side-side similarity theorem)*

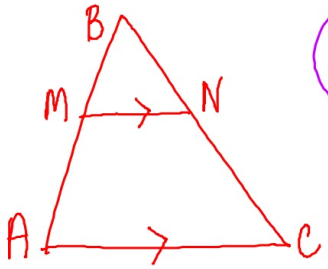
If 3 sides of one triangle are proportional to 3 sides of a 2nd triangle, then triangles are similar.

If 2 sides of one triangle are proportional to 2 sides of a 2nd triangle and the included angles are congruent, then triangles are similar.

SAS ~ *(side-angle-side similarity theorem)*

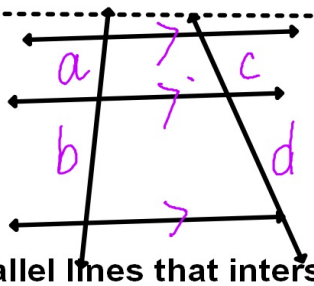
Triangle Proportionality Theorem

A line that is parallel to one side of a triangle and intersects the other two sides divides the sides proportionally.



$\frac{BM}{MA} = \frac{BN}{NC}$ $\quad \frac{NC}{MA} = \frac{BN}{BM}$

$\frac{MA}{BM} = \frac{NC}{BN}$



$\frac{a}{b} = \frac{c}{d}$ $\quad \frac{a}{c} = \frac{b}{d}$

Corollary: Three parallel lines that intersect two transversals divide the transversals proportionally.

Triangle-Angle Bisector Theorem

A ray that bisects an angle of a triangle divides the opposite side into segments that are proportional to the other 2 sides.