THE INTERCEPT THEOREM

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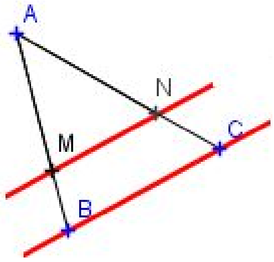
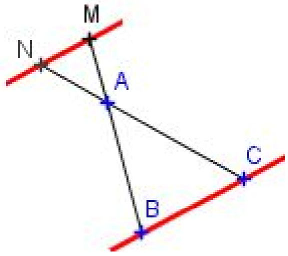
For the intercept theorem and its converse, we will suppose that A is the intersection point of two lines d and d', that M and B are two points of d distinct from A, and that N and C are two points of d' distinct from A.





The intercept theorem	If the lines MN and BC are parallel, then $\frac{AM}{AB} = \frac{AN}{AC} = \frac{MN}{BC}$.

That means "If a line is parallel to one side of a triangle, then it divides the other two sides proportionally".
See also "similar triangles" : two triangles are similar if their corresponding angles equal and their corresponding sides are in proportion.

Converse of the intercept theorem	If $\frac{AM}{AB} = \frac{AN}{AC}$ and if points A, M, B et A, N, C are in the same order, then the lines MN and BC are parallel.

That means "If a line divides two sides of a triangle in the same ratio, then the line is parallel to the third side of the triangle".

The midpoint theorem	If M and N are the midpoints of the sides AB and AC, then the segment line MN is parallel to the side BC and is equal to half its length.