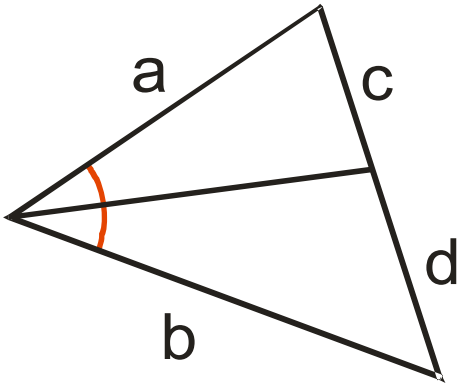
Angle Bisector Theorem

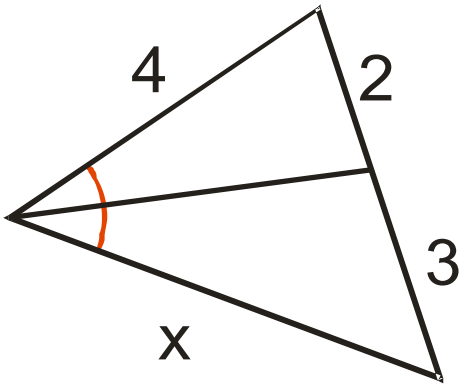
An angle bisector of any angle of a triangle that intersects the opposite side will cut that side into two segments that have the same ratio as the sides they are connected to.

In the diagram below a, b, c, and d are the lengths of the segments they are next to. This theorem states that $\frac{a}{b} = \frac{c}{d}$ is true.



Here is an example.

In the triangle below you can use the Angle Bisector Theorem to find the missing segment length x.



Accordng to the theorem $\frac{4}{x} = \frac{2}{3}$ so you can solve for x and get $x = 6$.