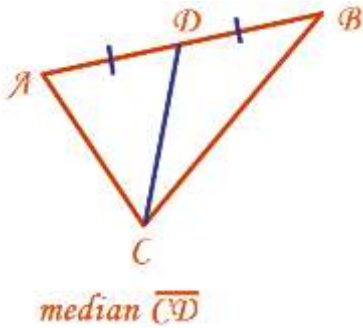


Unit 4 Lesson 4: Medians and Midsegments

Median: the segment that joins a **VERTEX** of a triangle with the midpoint of the opposite side.

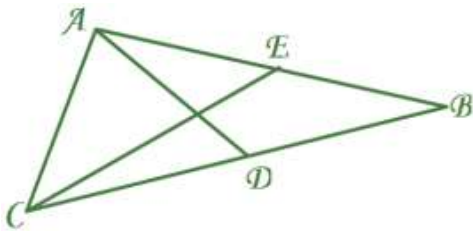
Ex:



Median creates congruent segments!

AD is congruent to DB

In $\triangle ABC$, CE and AD are medians.



Ex 1) Find BE if AB = 18.

AB is the entire segment and BE is half of that.

$$BE = 18/2 = 9$$

Ex 2) If $CD = 2x + 5$, $BD = 4x - 1$, and

$AE = 5x - 2$, find BE.

CD is congruent to BD

$$4x - 1 = 2x + 5$$

$$x = 3$$

AE is congruent to BE

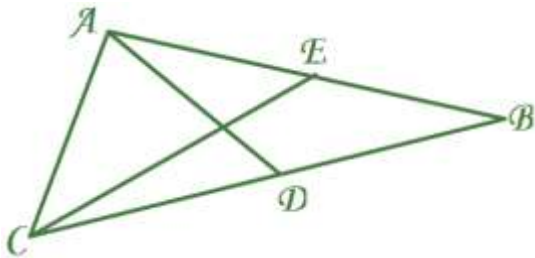
$$AE = 5x - 2$$

$$= 5(3) - 2$$

$$= 13 = BE$$

YOU TRY!!!

In $\triangle ABC$, CE and AD are medians.



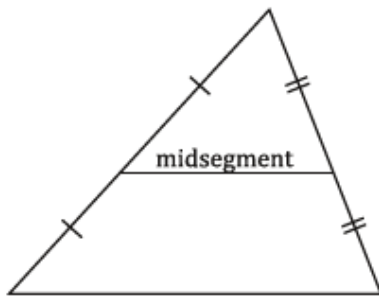
1) Find CD if $CB = 22$.

2) If $AE = x + 5$, $BE = 3x - 3$, and $CD = 4x - 1$ find DB .

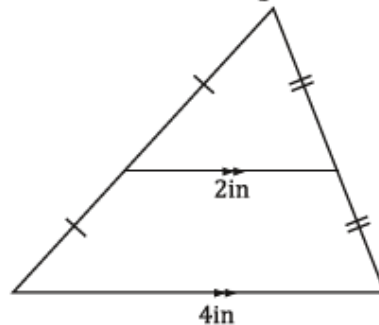
Midsegment Theorem

Let's cut more stuff in half.

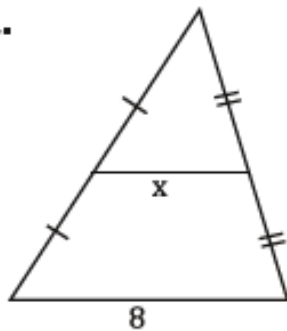
If you take a triangle and draw a segment whose endpoints bisect two sides of the triangle you get a midsegment. Like this.



Because this creates two similar triangles, the midsegment is parallel to the base and is twice as long. Like this.



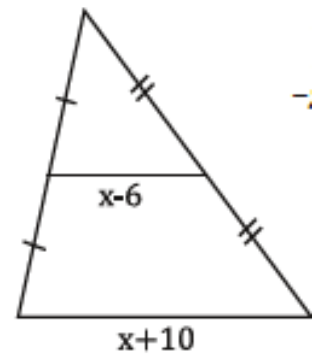
Ex. 1.



Since x is the midsegment of the triangle, it is parallel to the base and is twice as long.

Since the base = 8, the midsegment $x = 4$

Ex. 2.



Since $x - 6$ is the midsegment of the triangle, it is parallel to the base and is twice as long.

Since the base = $x + 10$, the midsegment = $2(x - 6)$

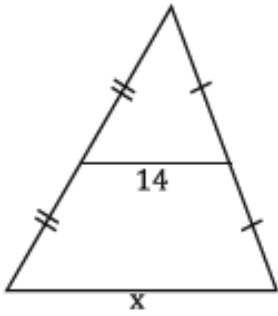
$$x + 10 = 2(x - 6)$$

$$x + 10 = 2x - 12$$

$$x = 22$$

YOU TRY!!!

3.) Solve for x.



4.) Solve for x.

