

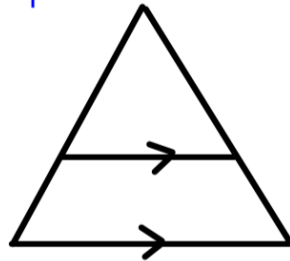
# Goals for Today

- Triangle Midsegment Theorem
- Triangle of Proportionality Theorem
- Practice with Triangle Theorems

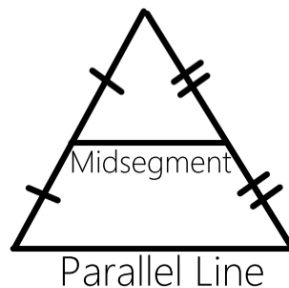
FOLDABLE

Triangle Theorems

Triangle Proportionality Theorem:



Triangle Midsegment Theorem:



# On the inside

**Triangle Proportionality Theorem:** A line parallel to one side of a triangle divides the other two proportionally, (and its converse).

Ex. 1

$\frac{6}{18} = \frac{4}{x}$   
 $6x = 72$   
 $x = 9$

Ex. 2

$\frac{12}{x-10} = \frac{8}{6}$   
 $8(x-10) = 72$   
 $8x - 80 = 72$   
 $8x = 152$   
 $x = 19$

Ex. 1

$2(x) = 18$   
 $x = 9$

Ex. 2

$2(12) = y$   
 $24 = y$

## Midsegment of a Triangle :

1. Parallel to one side
2. Midsegment is  $\frac{1}{2}$  the length of the parallel side
3. Midsegment contacts the midpoints.

Equation: ~~midsegment =  $\frac{1}{2}$ (parallel side)~~

$2(\text{midsegment}) = \text{parallel side}$

# Practice Similarity and Triangles

1. Mid seg

2(midsegment) = parallel side

$$2(3x) = 84$$

$$\frac{6x}{6} = \frac{84}{6}$$

$$x = 14$$

2. Mid Segment

$$2(4) = 5x - 2$$

$$8 = 5x - 2$$

$$10 = 5x$$

$$x = 2$$

3. Midsegment

$$\frac{2(x)}{2} = \frac{24}{2}$$

$$x = 12$$

4. Proportionality

$$\frac{x}{10} = \frac{8}{4}$$

$$4x = 80$$

$$x = 20$$

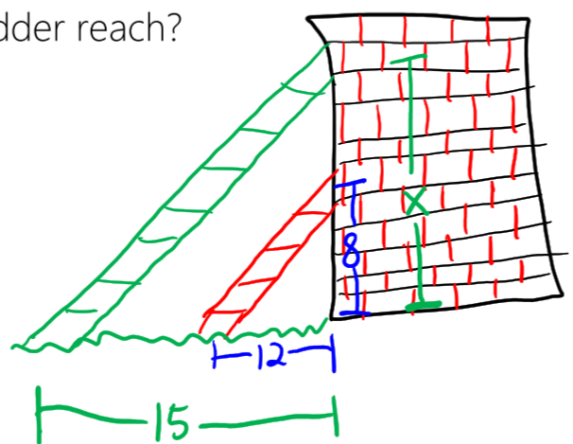
## Recap: Similarity and Triangles

1. Two ladders are leaned against a wall such that they are parallel with each other. The shorter ladder's feet are 12' from the wall and reaches 8' up the wall. The taller ladder's feet are 15' from the wall, how much further up the wall does the taller ladder reach?

$$\frac{15}{12} = \frac{x}{8}$$

$$12x = 120$$

$$x = 10$$



2. Find the value of x.

$$2(11) = 3x - 5$$

$$22 = 3x - 5$$

$$27 = 3x$$

$$x = 9$$

