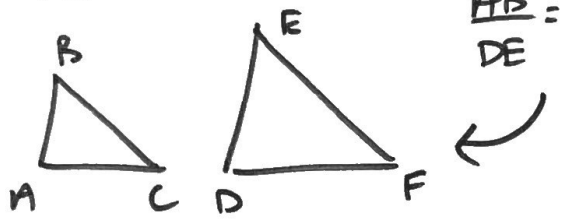
Unit 4 Review / outline

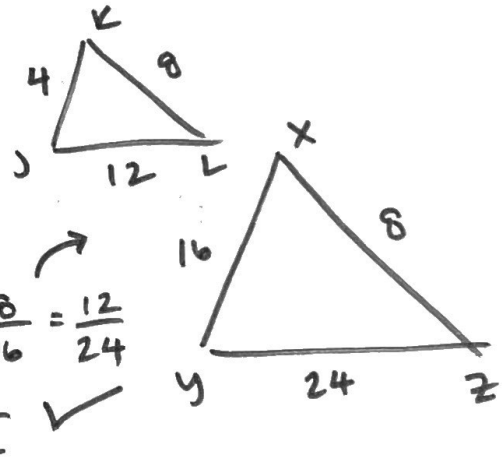
- Proving $\triangle$'s Similar: sides are proportional & $\angle$'s are $\cong$.
  3 ways SSS, SAS, AA

- When setting up proportions use corresponding sides if possible or set up $\frac{\text{smallest}}{\text{smallest}}$, $\frac{\text{medium}}{\text{medium}}$, $\frac{\text{large}}{\text{large}}$.

Ex:
$\triangle ABC \sim \triangle DEF$



$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$



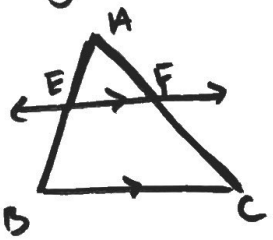
or

$\frac{4}{8} = \frac{8}{16} = \frac{12}{24}$

$= \frac{1}{2}$ ✓

* proportions have to be equal!

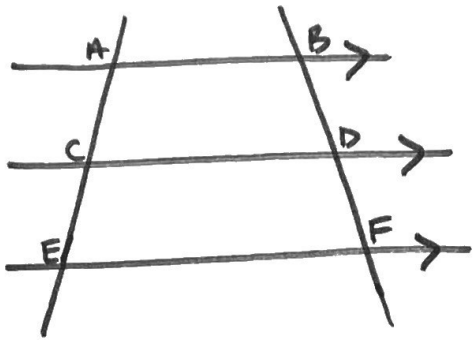
- Triangle Proportionality Theorem:



If $\overline{EF} \parallel \overline{BC}$,
then $\frac{AE}{EB} = \frac{AF}{FC}$

* think of parallel line as a fraction bar!

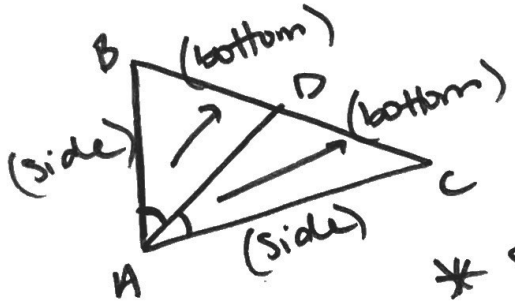
- Two transversal Proportionality:



* two transversals intersect 3 or more // lines, the transversals are divided proportionally.

$$\frac{AC}{CE} = \frac{BD}{DF}$$

- Triangle Angle Bisector Theorem:



If AD bisects ∠BAC, then $\frac{BD}{DC} = \frac{AB}{AC}$.

* Set up $\frac{\text{bottom}}{\text{bottom}} = \frac{\text{side}}{\text{side}}$.

- TO SOLVE, cross multiply:

Ex: $\frac{x}{18} \times \frac{3}{7}$

$18(3) = 7(x)$

$\frac{54}{7} = \frac{7x}{7}$

$\boxed{x = 7.71}$

Ex: $\frac{8}{x+7} \times \frac{2}{x+1}$

$2(x+7) = 8(x+1)$

$2x + 14 = 8x + 8$

$-2x \quad -2x$

$14 = 6x + 8$

$-8 \quad -8$

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

$\boxed{x = 1}$