

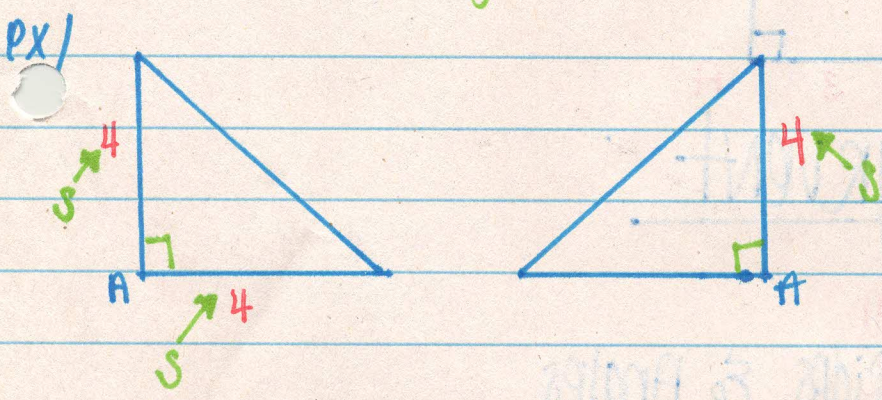
Ch. 4 & 7 knowing when Δ s are \cong or \sim

(congruent) OR (similar)

I. Proving Triangles CONGRUENT

- ★ SSS, SAS, ASA, AAS, & HL (work)
- ★ SSA (NOT RIGHT), AA DON'T WORK!

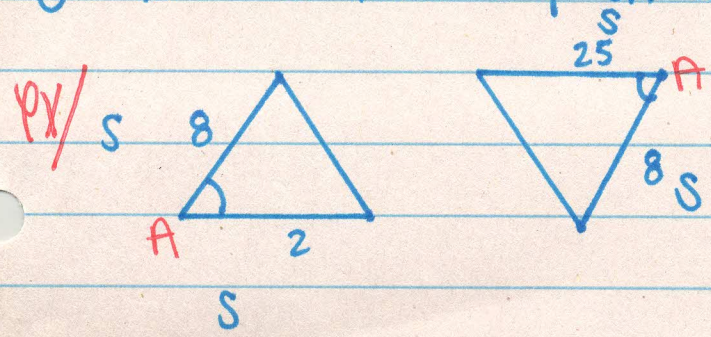
A. Marking \cong parts
 → Labeling S & A
 These labels are for relationships between 2 triangles



B. Once the S's & A's are labeled, IDENTIFY RELATIONSHIP

(SSS, SAS, ASA, AAS, not on list AA, SSA)

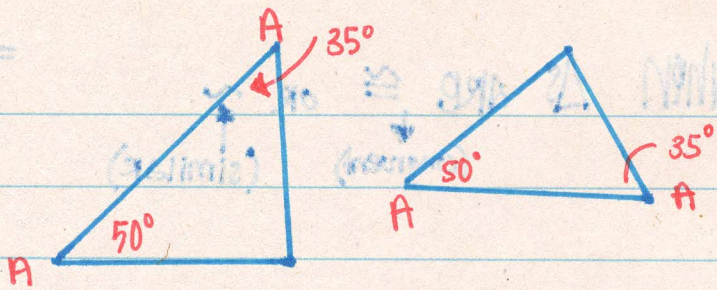
C. Is that relationship on the list? \uparrow HL is!



rel: SAS (on the list)

CONGRUENT

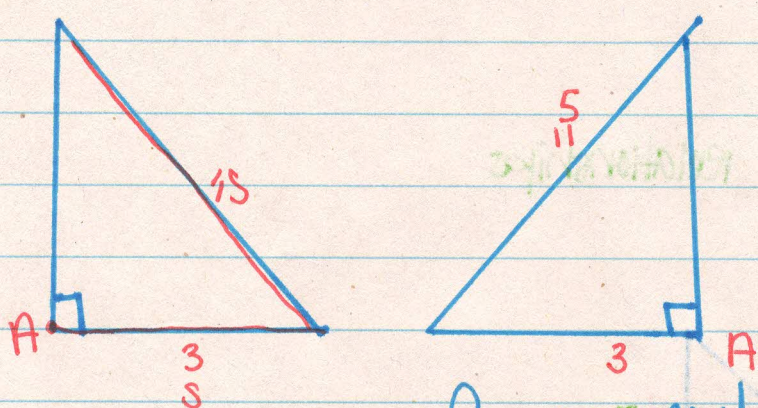
px/



AA
NOT CONGRUENT!

The list for \cong is SSS, SAS, ASA, AAS & HL

px



SSA
Right
HL

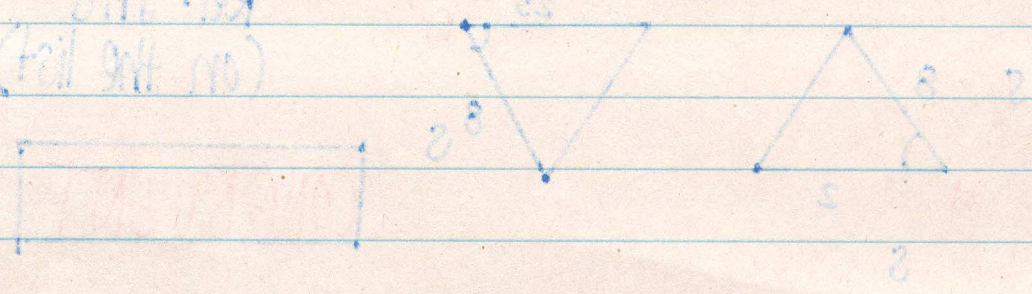
Congruent

II. Proving Similarity

A. Mark Matching Sides & Angles

→ Angles are still congruent (A)

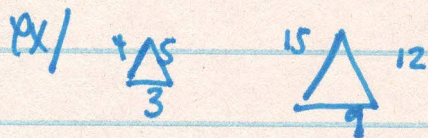
→ Sides are similar
($S \sim$)



B. Figuring out if sides are similar...

1. organize sides by size

Small side Δ	Large Δ
Small side \rightarrow 3	small side \rightarrow 9
medium \rightarrow 4	medium \rightarrow 12
Large \rightarrow 5	Large \rightarrow 15



2. Create fractions for each side set:

small sides

$$\frac{SA \text{ small}}{LA \text{ small}}$$

ex/ $\frac{3}{9}$

reduce...

$$\frac{1}{3}$$

$$\frac{SA \text{ med}}{LA \text{ med}}$$

$\frac{4}{12}$

reduce...

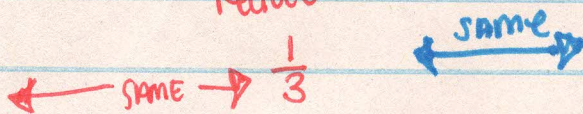
$$\frac{1}{3}$$

$$\frac{SA \text{ LARGE}}{LA \text{ LARGE}}$$

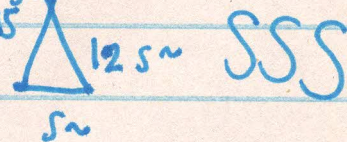
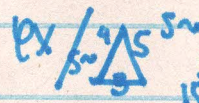
$$\frac{5}{15}$$

Reduce

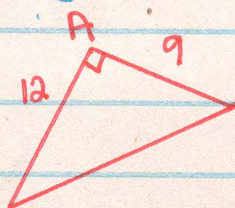
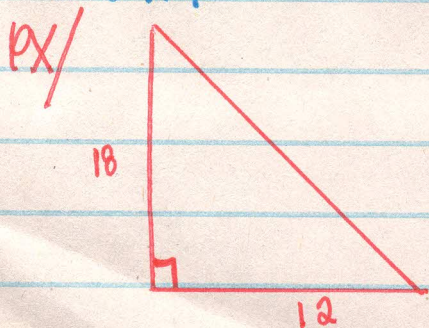
$$\frac{1}{3}$$



sides ARE similar



★ Rule: If any fraction doesn't match nothing is similar!



SAS: 9

LAS: 12

SDL: 12

LAL: 18

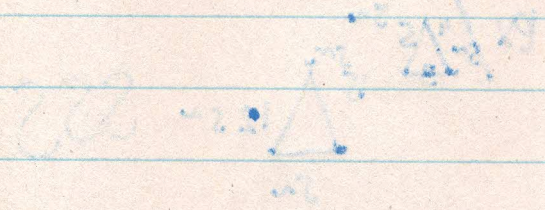
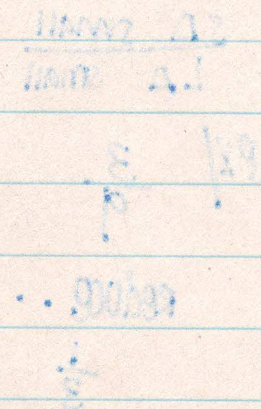
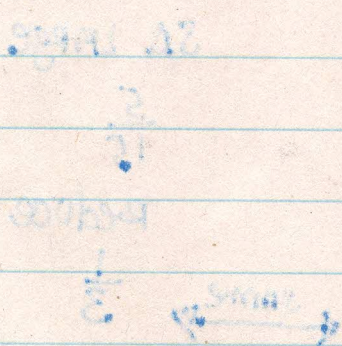
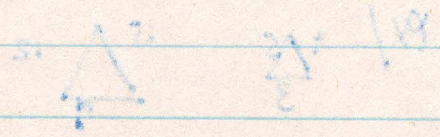
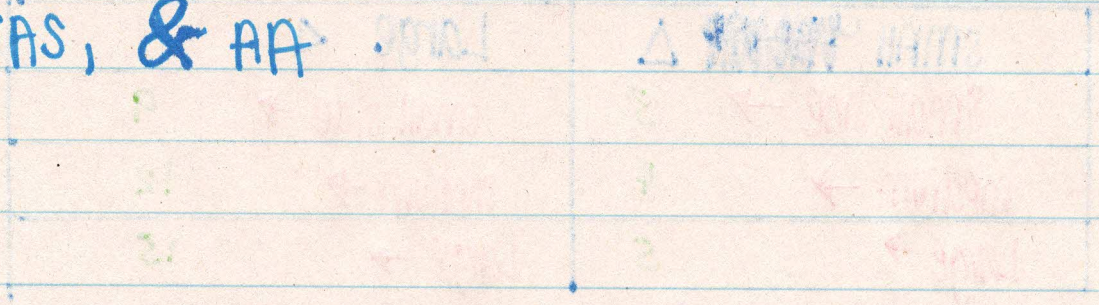
Small $\frac{9}{12} = \frac{3}{4}$

Large $\frac{12}{18} = \frac{4}{6} = \frac{2}{3}$

Sides NOT similar!

C. Similar Properties that work:

SSS, SAS, & AA



* Rule: If one angle and one side of a triangle are equal to one angle and one side of another triangle, then the two triangles are similar.