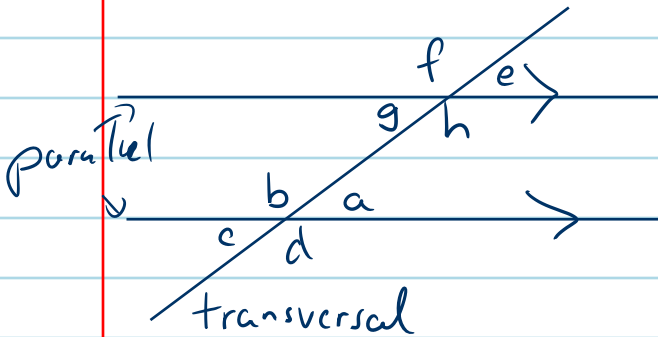


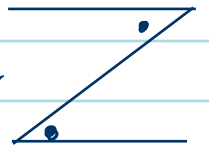
# Unit 6 Day 1

## 6-1 Similar Triangles



### Equal Angles

- 1) Vertically Opposite Angles  
 $\angle a = \angle c, \angle b = \angle d, \angle e = \angle g, \angle f = \angle h$
- 2) Corresponding Angles  
 $\angle a = \angle e, \angle b = \angle f, \angle c = \angle g, \angle d = \angle h$
- 3) Alternate Interior  $\angle$ 's.  
 $\angle a = \angle g, \angle b = \angle h$
- 4) Alternate Exterior  $\angle$ 's  
 $\angle c = \angle e, \angle d = \angle f$

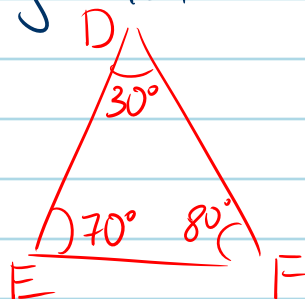
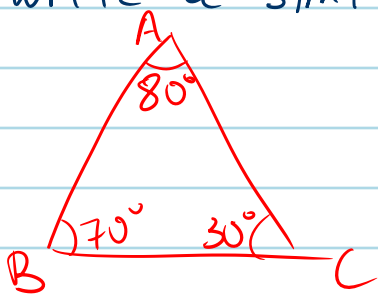


If 2  $\Delta$ 's are similar, one is a perfect enlargement of the other, perhaps rotated or flipped.

- 3 Tests for  $\Delta$  Similarity:
- a) Angle Test (AAA)
  - b) Side Ratio Test (SSS)
  - c) Side-Angle-Side Test (SAS)

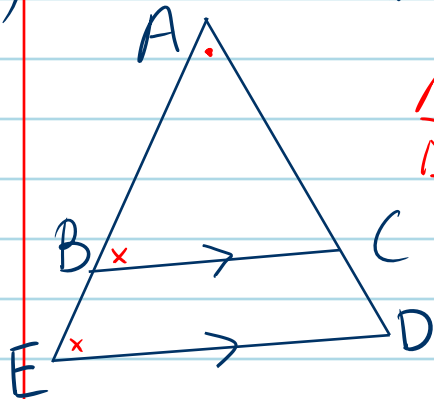
A) AAA Test (Each  $\angle$  in 1  $\Delta = \angle$  in the other)

1) In  $\Delta ABC$ ,  $\angle A = 80^\circ$  and  $\angle C = 30^\circ$ . In  $\Delta DEF$ ,  $\angle E = 70^\circ$  and  $\angle D = 30^\circ$ . Determine if similarity exists and, if so, write a similarity statement.



similar  
 $\Delta ABC \sim \Delta FED$

2) Write a similarity Statement:



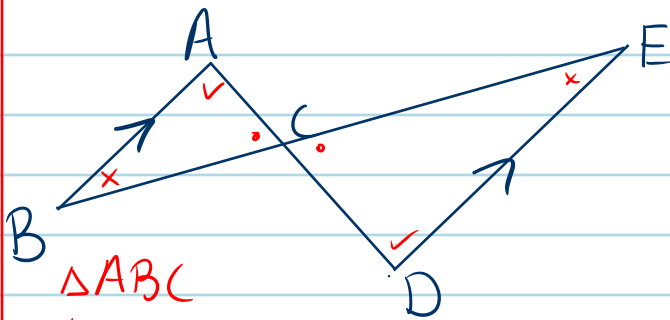
$\triangle ABC$   
 $\triangle AED$

State Equal Angles

$\angle A = \angle A$  Same  $\angle$ !  
 $\angle B = \angle E$  Corresponding  
 $\angle C = \angle D$  Corr. or  
 $\angle$ 's in  $\triangle = 180^\circ$

$\triangle ABC \sim \triangle AED$

3)



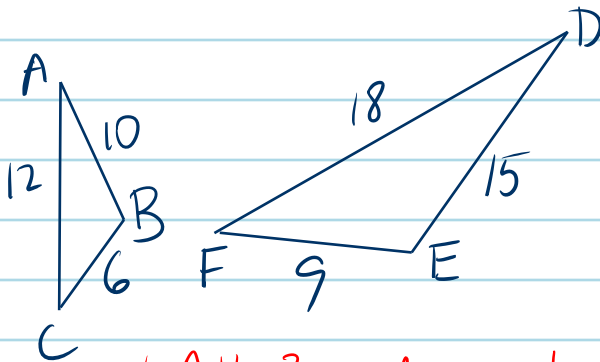
$\triangle ABC$   
 $\triangle CDE$

State Equal Angles

$\angle C = \angle C$  Vert. Opp.  
 $\angle B = \angle E$  Alt. Int.  
 $\angle A = \angle D$  Alt. Int. or  
 $\angle$ 's in  $\triangle = 180^\circ$

B) Side Ratio Test

5)



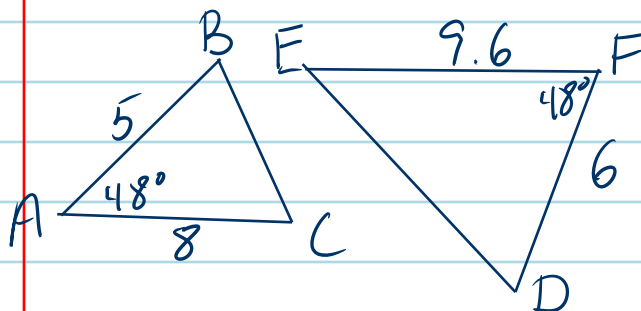
Side Ratios

$$\frac{18}{12} = \frac{3}{2} \quad \frac{15}{10} = \frac{3}{2}$$

$$\frac{9}{6} = \frac{3}{2} \quad \text{Yes!}$$

\*All 3 side ratios must be equal for similarity.  $\triangle ABC \sim \triangle DEF$

C) Side-Angle-Side Test: If 2 side ratios equal, and  $\angle$  between them =,  $\triangle$ 's similar



$$\frac{9.6 \cdot 10}{8 \cdot 10} = \frac{96}{80} = \frac{6}{5}$$

$$\frac{6}{5}$$

$\triangle ABC \sim \triangle FDE$