3/26 Aim Proving Triangles similar
Do now Homework out
Sheet of notebook paper
Highlighters
Cheat sheet
do now Proof

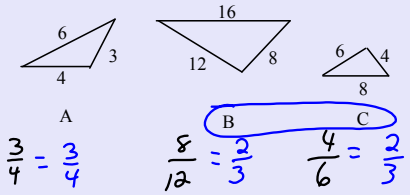
Homework: TBA

Test Wednesday
Test Tuesday and Wednesday

Jan 8-9:54 AM

1. For each part (a) through (d) below, state which of the three triangles, if any, similar and why.

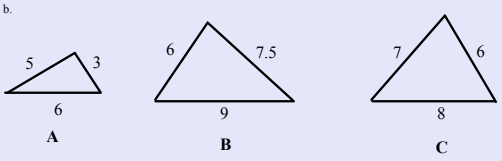
a. SSS similarity



$\frac{3}{4} = \frac{3}{4}$ $\frac{8}{12} = \frac{2}{3}$ $\frac{4}{6} = \frac{2}{3}$

Jan 7-11:10 AM

b.

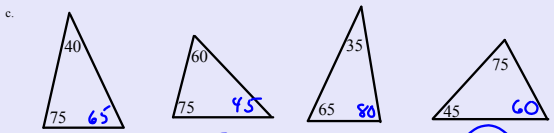


$\frac{3}{5}$ $\frac{6}{7.5}$ $\frac{6}{7}$

None!

Jan 7-11:10 AM

c.



find $\angle$

Jan 7-11:10 AM

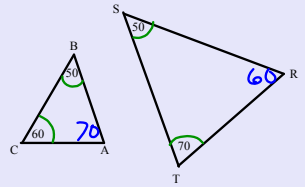
SAS SAS ~~ASS~~

$\frac{4}{9} = \frac{2}{4.5}$ $\frac{2}{4\frac{1}{2}}$

SAS similarity

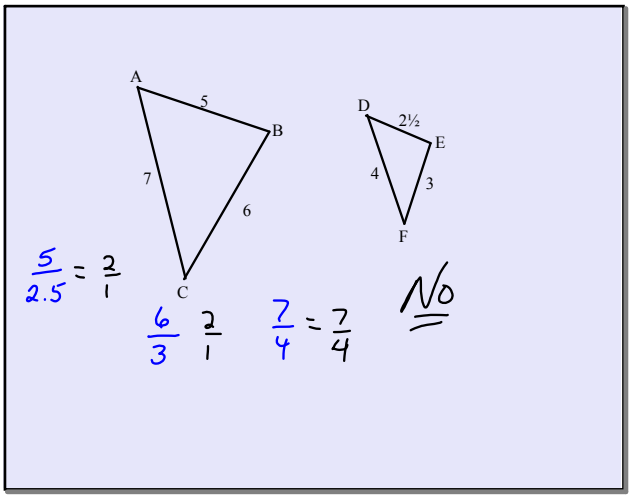
Jan 7-11:10 AM

2. For each given pair of triangles, determine if the triangles are similar or not, and provide your reasoning. If the triangles are similar, write a similarity statement relating the triangles.

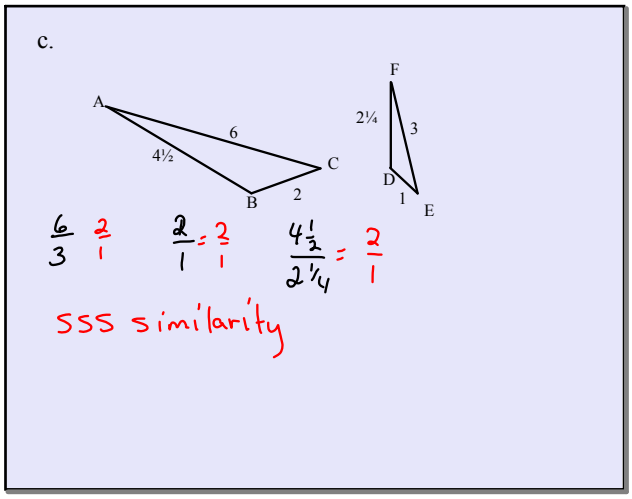


AA $\triangle ABC \sim \triangle TSR$

Jan 7-11:10 AM



Jan 7-11:10 AM



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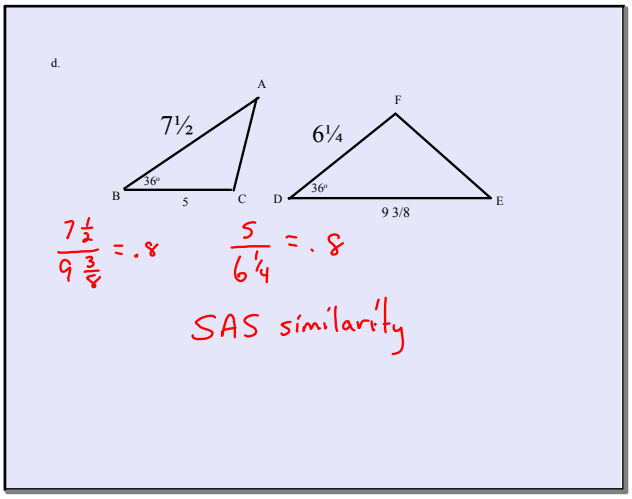

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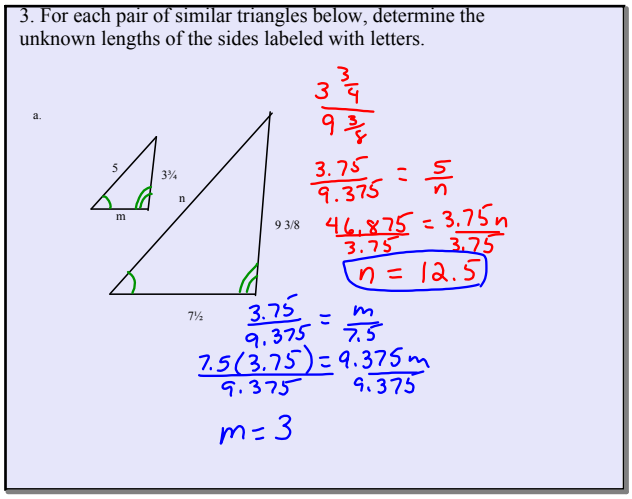

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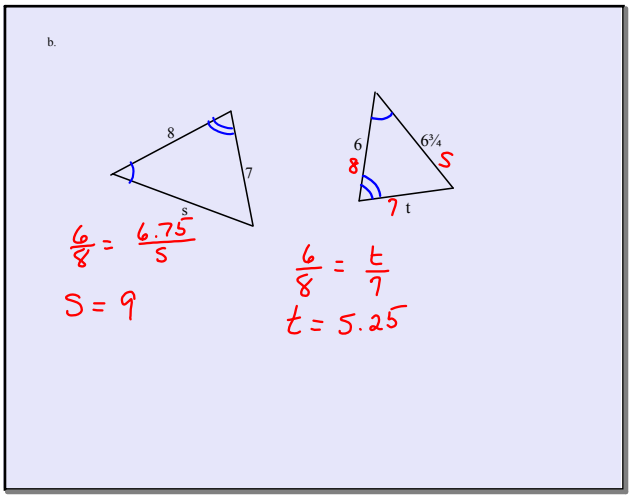
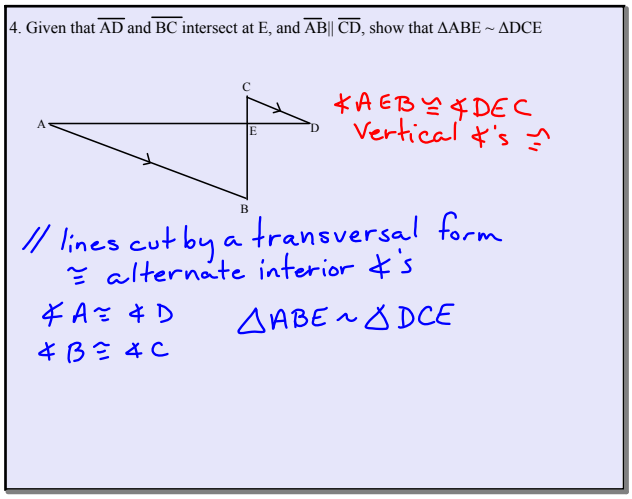


Jan 7-11:10 AM



Jan 7-11:10 AM

On your paper

What makes two triangles similar?

Feb 17-8:44 AM

What makes two triangles similar?

Triangles are similar if corresponding angles are congruent and corresponding sides are in proportion.

They look alike but can differ in size, orientation, placement and position.

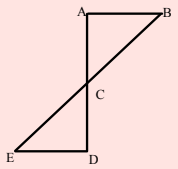
Feb 17-8:44 AM

do proof in packet

Mar 27-3:18 PM

Do now: Prove $\Delta ABC \sim \Delta DEC$

Given: $\overline{AD}$ perpendicular to $\overline{AB}$
$\overline{DA}$ perpendicular to $\overline{ED}$
$\overline{BE}$ bisects $\overline{AD}$



Statements	Reasons

Jan 8-9:55 AM

on your notebook paper

Mar 27-3:18 PM

copy

The **ratio of similitude** is the comparison of the lengths of corresponding sides in reduced form.

$\frac{4}{10} = \frac{2}{5}$

The ratio of similitude is 2:5

Feb 17-8:51 AM

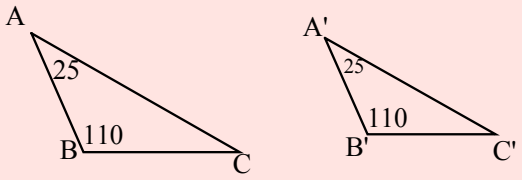
Triangles are similar, angles are congruent.

COPY

$\Delta ABC \sim \Delta A'B'C'$

$\angle A \quad \angle A'$

$\angle B \quad \angle B'$

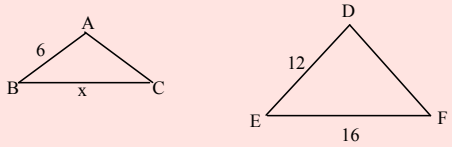


Feb 17-8:59 AM

next page in packet

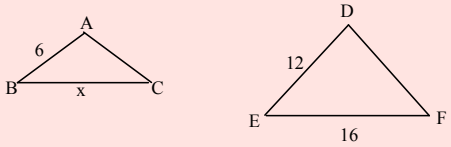
Mar 27-3:16 PM

1. Similar triangles: Two triangles that have the same_____, but not necessarily the same_____.



Feb 17-9:07 AM

1. Similar triangles: Two triangles that have the same SHAPE, but not necessarily the same SIZE.



Feb 17-9:07 AM

2) Notation for similar:_____

3) What is true about their angles?
***Corresponding angles are?_____

4) What is true about their sides?
***Corresponding sides are _____

Feb 17-9:09 AM

2) Notation for similar: ~

3) What is true about their angles?
***Corresponding angles are Congruent

4) What is true about their sides?
***Corresponding sides are in proportion.

Feb 17-9:09 AM

5) If two pairs of angles are congruent, what must be true about the third pair of angles? _____

6) Therefore, we use the _____ method to prove triangles similar.

7) Find the length of BC.

8) In a proportion the product of the _____, equals the product of the _____.

Jan 8-11:06 AM

5) If two pairs of angles are congruent, what must be true about the third pair of angles? congruent as well

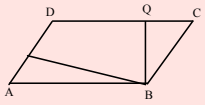
6) Therefore, we use the AA AA method to prove triangles similar.

7) Find the length of BC. $\frac{6}{X}=\frac{12}{16}$ $12x = 96$ $x = 8$ $BC = 8$

8) In a proportion the product of the means, equals the product of the extremes.

Jan 8-11:06 AM

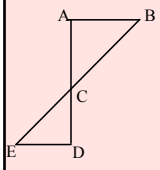
1) Given: Parallelogram ABCD
$\overline{BP}$ perp $\overline{AD}$
$\overline{BQ}$ perp $\overline{DC}$
Prove: $\Delta APB \sim \Delta CQB$



Statements	Reasons
1. Parallelogram ABCD	
2. <A <C	
3. $\overline{BP}$ perp $\overline{AD}$, $\overline{BQ}$ perp $\overline{DC}$	
4. <APB and <CQB are right angles	
5. <APB <CQB	
6. $\Delta APB \sim \Delta CQB$	

Feb 17-9:22 AM

Given $\overline{AD} \perp \overline{AB}$
$\overline{AD} \perp \overline{ED}$
Prove: $\Delta ABC \sim \Delta DEC$

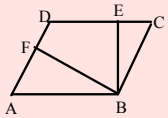


Statements	Reasons

Feb 17-9:40 AM

Example 2:
Given: <A <C
$\overline{BE} \perp \overline{DC}$
$\overline{BF} \perp \overline{AD}$

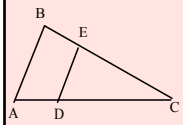
Prove: $\Delta BAF \sim \Delta BCE$



Statements	Reasons

Feb 17-9:42 AM

Example #3:
Given: $\overline{AB} \parallel \overline{DE}$
Prove: $\Delta ABC \sim \Delta DEC$

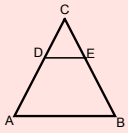


Statements	Reasons
1. $\overline{AB} \parallel \overline{DE}$	
2.	
3.	
4.	

Feb 17-9:44 AM

1. Given: $\overline{DE} \parallel \overline{AB}$

Prove $\Delta ABC \sim \Delta DEC$



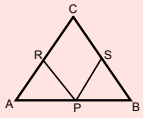
Jan 8-9:55 AM

2. Given: $\overline{AC} \cong \overline{CB}$

$\overline{PR} \perp \overline{AC}$

$\overline{PS} \perp \overline{BC}$

Prove: $\Delta APR \sim \Delta BPS$

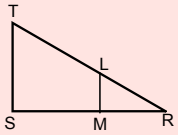


Jan 8-9:55 AM

3. Given: $\overline{TS} \perp \overline{RS}$

$\overline{LM} \perp \overline{RS}$

Prove: $\Delta LMR \sim \Delta TSR$

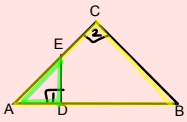


Jan 8-9:55 AM

4. Given: BC $\perp$ AC

DE $\perp$ AB

Prove: $\Delta ABC \sim \Delta ADE$



Statement	Reason
① BC $\perp$ AC, DE $\perp$ AB	① Given
② $\angle 1$ and $\angle 2$ are rt. $\angle$'s	② $\perp$ lines form right $\angle$'s
③ $\angle 1 \cong \angle 2$	③ All rt. $\angle$'s are congruent
④ $\angle A \cong \angle A$	④ Reflexive
⑤ $\Delta ABC \sim \Delta ADE$	⑤ AA

Jan 8-9:55 AM

- Parallel lines
  - Corresponding angles
  - Alternate interior angles
- $\perp$ (Perpendicular)
  - Right angles
- Look for:
  - Reflexive (sharing the same $\angle$)
  - Vertical angles
- When given 2 sides $\cong$
  - angles opp. $\cong$ sides are $\cong$

Mar 23-6:28 AM

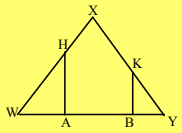
Do Now

Given: $\overline{XW} \cong \overline{XY}$

$\overline{HA} \perp \overline{WY}$

$\overline{KB} \perp \overline{WY}$

Prove: $\Delta HWA \sim \Delta KYB$



STATEMENTS	REASONS

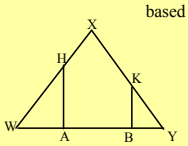
Feb 17-10:01 AM

When two triangle are similar we know that the corresponding angles are congruent.
We have just proven that the two triangles are similar by AA ≅ AA in the do now.
The second fact about similar triangles is that the corresponding sides are in proportion.
If we look at the triangle that we have just worked with, let us find some of the proportions we could use...

do not copy

Feb 24-6:59 AM

Here we can set up differernt proportions based on the congruent triangles.



ΔHWA~ΔKYB

$\frac{WH}{WA} = \frac{\quad}{\quad}$

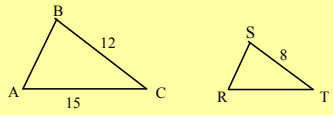
$\frac{WH}{HA} = \frac{\quad}{\quad}$

$\frac{HA}{WA} = \frac{\quad}{\quad}$

$\frac{BY}{AH} = \frac{\quad}{\quad}$

Feb 17-10:06 AM

Do now: In the accompanying diagram, ΔABC is similar to ΔRST. Find the length of RT.



Feb 17-10:13 AM

* Remember !! If two triangles are similar, then the corresponding sides of the two triangles are in proportion.

Once you prove that triangle 1 is similar to triangle 2, you can set up the following proportion:

$$\frac{\text{side of } \Delta 1}{\text{corresponding side of } \Delta 2} = \frac{\text{another side of } \Delta 1}{\text{Corresponding side of } 2}$$

Feb 17-10:14 AM

Corresponding SIDES of similar triangles are in proportion.

this is your new reason

Feb 24-7:11 AM

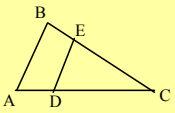
In order to prove a **proportion** you must prove that the two triangles are similar first AA≅AA.

copy and highlight

Feb 24-7:16 AM

Example 1
Given : $\overline{AB} \parallel \overline{DE}$

Prove $\frac{EC}{BC} = \frac{ED}{AB}$



Statements	Reasons

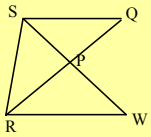
plan:
What triangles are we proving?

Use your pen or pencil and draw on the lines of the proportion

Feb 17-10:16 AM

Given $\overline{SR} \cong \overline{SQ}$
$\overline{RQ}$ bisects <SRW

Prove: $\frac{SQ}{RW} = \frac{SP}{PW}$

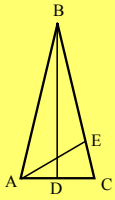


statements	reasons

Feb 17-10:22 AM

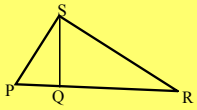
Given Isosceles triangle ABC,
$\overline{BA} \cong \overline{BC}$
$\overline{AE}$ perp $\overline{BC}$,
and $\overline{BD}$ perp $\overline{AC}$.

Prove AC = AE
$\overline{BA}$ $\overline{BD}$



Jan 9-9:44 AM

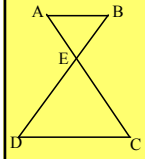
4. Given Right ΔPSR with altitude drawn to hypotenuse $\overline{PR}$
Prove $\frac{PR}{PS} = \frac{PS}{PQ}$



Jan 9-9:44 AM

5. Given: $\overline{AB} \parallel \overline{DC}$

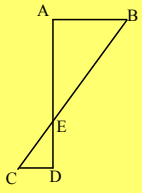
Prove: $\frac{AE}{CE} = \frac{BE}{DE}$



Jan 9-9:44 AM

6. Given: $\overline{AB} \parallel \overline{CD}$

Prove: $\frac{AE}{ED} = \frac{BE}{CE}$



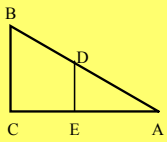
Jan 9-9:44 AM

7

In Right ΔABC, $m\angle C = 90$

$\overline{DE} \perp \overline{CA}$

Prove: $\frac{AD}{AB} = \frac{DE}{BC}$



Jan 9-9:44 AM

Jan 8-9:55 AM

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