Questions on Lesson 4.1?

We will be taking our content

mastery quiz soon!

$\triangle DEF$ scale factor = 2

pre-image

$D(3,7) \rightarrow D'(6,14)$

$E(2,1) \rightarrow E'(4,2)$

$F(4,5) \rightarrow F'(8,10)$

Content Mastery Quiz Lesson 4.1

****Show ALL work to receive credit****

1) The vertices of triangle ABC are A(3,4), B(1,5), and C(4,2). What are the coordinates of the image of triangle ABC dilated using a scale factor of 2, with the center of dilation at the origin.

Oct 1-8:12 AM

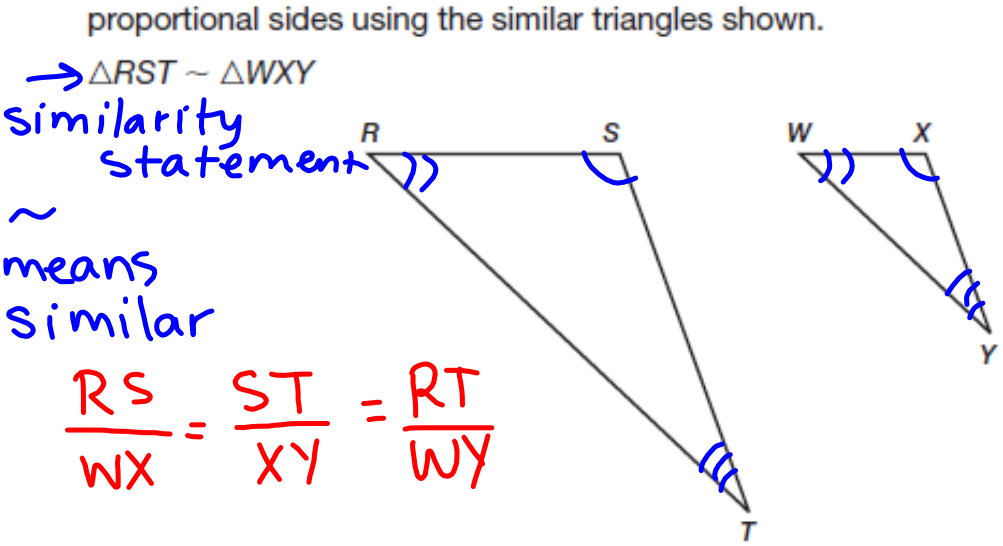
4.2 Similar Triangles or Not?

Similar Triangle Theorems

PG.274 IN YOUR BOOK

In the previous lesson, you used transformations to prove that triangles are similar when their corresponding angles are congruent and their corresponding sides are proportional. In this problem, you will explore the similarity of two triangles using construction tools.

1. Identify all of the corresponding congruent angles and all of the corresponding proportional sides using the similar triangles shown.



$\triangle RST \sim \triangle WXY$

similarity statement

~ means similar

$\overline{RS}$ corr. $\overline{WX}$

$\overline{ST}$ corr. $\overline{XY}$

$\overline{RT}$ corr $\overline{WY}$

$$\frac{RS}{WX} = \frac{ST}{XY} = \frac{RT}{WY}$$

You can conclude that two triangles are similar if you are able to prove that all of their corresponding angles are congruent and all of their corresponding sides are proportional.

BTW:

Ratio: $\frac{3}{4}$ 3 to 4 3:4

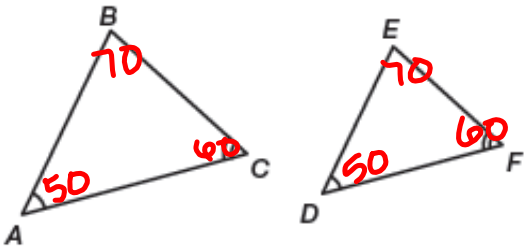
Proportion: 2 or more equal ratios

$$\frac{3}{4} = \frac{6}{8} = \frac{9}{12}$$

Sep 14-9:16 AM

PG.275 IN YOUR BOOK

The **Angle-Angle Similarity Theorem** states: "If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar."



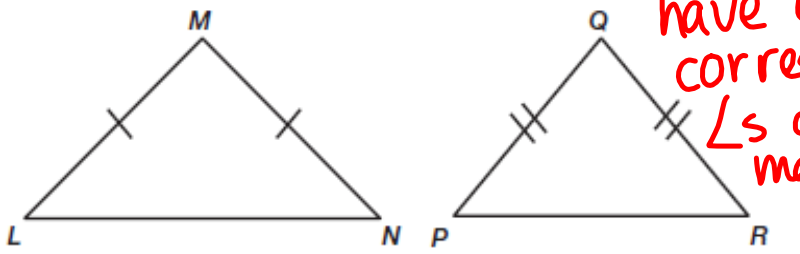
If $m\angle A = m\angle D$ and $m\angle C = m\angle F$, then $\triangle ABC \sim \triangle DEF$.

5. Explain why this similarity theorem is Angle-Angle instead of Angle-Angle-Angle.

If 2 ∠s are =, the third one has to be = also in order for them to = 180°

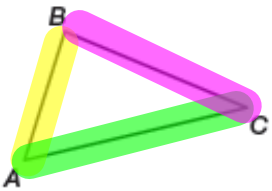
6. The triangles shown are isosceles triangles. Do you have enough information to show that the triangles are similar? Explain your reasoning.

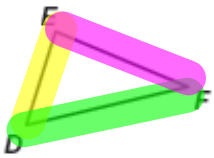
Nope. We don't have any corresponding ∠s or sides marked.



PG.279 IN YOUR BOOK

The **Side-Side-Side Similarity Theorem** states: "If all three corresponding sides of two triangles are proportional, then the triangles are similar."





$\angle B \neq \angle E$

If $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$, then $\triangle ABC \sim \triangle DEF$.

Stacy says that the Side-Side-Side Similarity Theorem tells us that two triangles can have proportional sides, but not congruent angles, and still be similar. Michael doesn't think that's right, but he can't explain why.

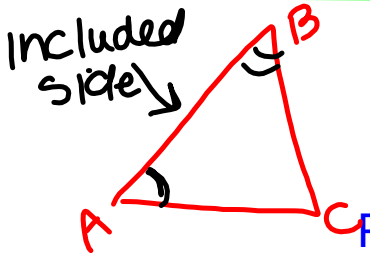
7. Is Stacy correct? If not, explain why not.

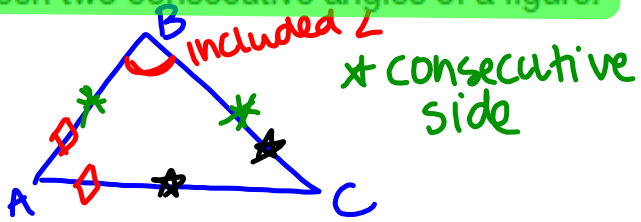
No, the $\angle$s have to be congruent.

PG.280 IN YOUR BOOK

An **included angle** is an angle formed by two consecutive sides of a figure.

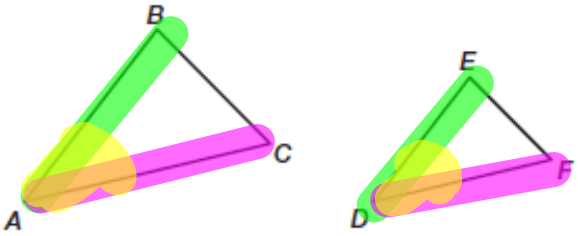
An **included side** is a line segment between two consecutive angles of a figure.





PG.281 IN YOUR BOOK

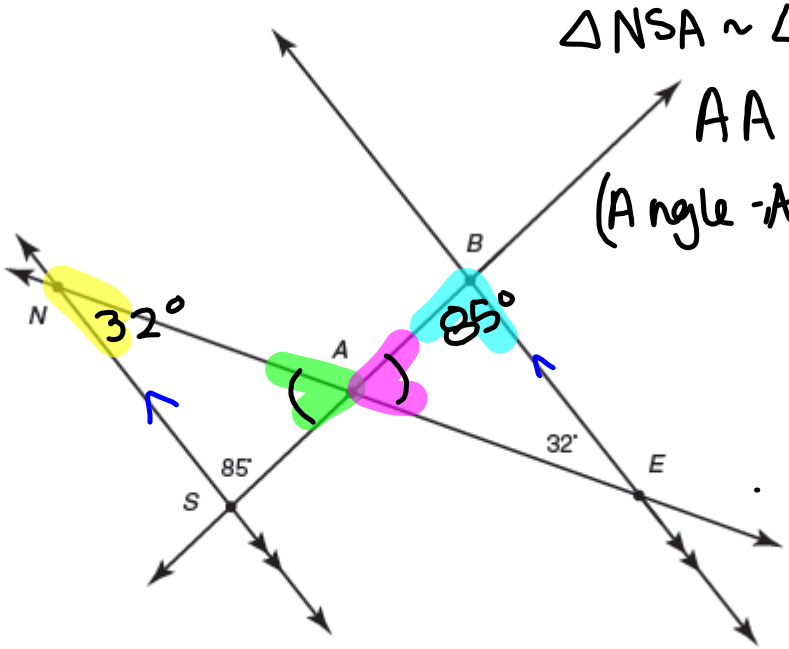
The **Side-Angle-Side Similarity Theorem** states: "If two of the corresponding sides of two triangles are proportional and the included angles are congruent, then the triangles are similar."



If $\frac{AB}{DE} = \frac{AC}{DF}$ and $\angle A \cong \angle D$, then $\triangle ABC \sim \triangle DEF$.

NOT IN YOUR BOOK, WRITE IN YOUR NOTES

1. In the figure below, $\overleftrightarrow{NS} \parallel \overleftrightarrow{BE}$. Use the information given in the figure to determine the $m\angle SNA$, $m\angle NAS$, $m\angle ABE$, and $m\angle BAE$. Is $\triangle NSA$ similar to $\triangle EBA$? If the triangles are similar, write a similarity statement. Use complete sentences to explain your answers.



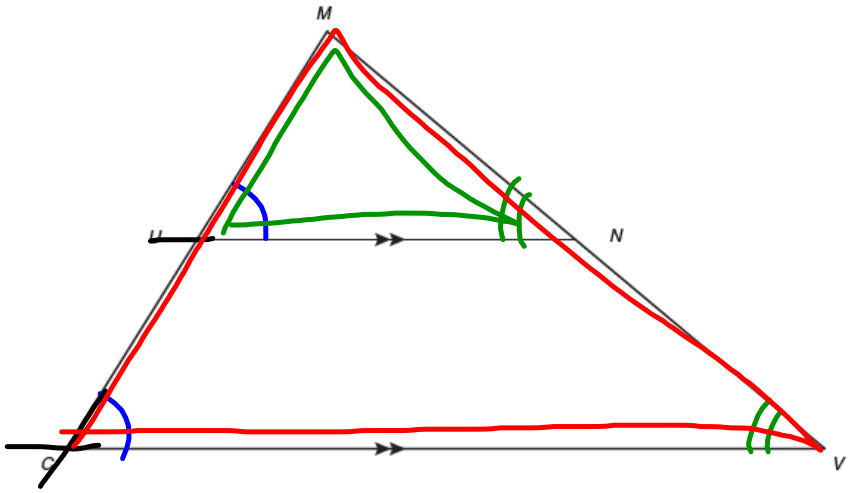
△NSA ~ △EBA

AA ~

(Angle-Angle ~)

NOT IN YOUR BOOK, WRITE IN NOTES

3. In the figure shown, $\overline{NU} \parallel \overline{CV}$. Use the figure to complete part (a) through part (c).



a. Is $\angle MUN \cong \angle MCV$? Explain your answer.

yes, corresponding $\angle$s

b. Is $\angle MNU \cong \angle MVC$? Explain your answer.

yes, corresponding $\angle$s

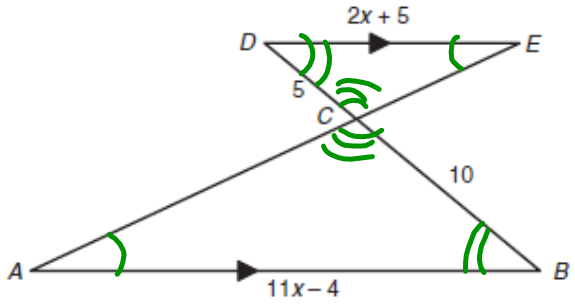
c. Is $\triangle CMV \sim \triangle UMN$? Explain your answer.

Yes, we have AA ~

Oct 2-3:04 PM

NOT IN YOUR BOOK, WRITE IN NOTES

4. In the figure shown, segments *AB* and *DE* are parallel. The length of segment *BC* is 10 units and the length of segment *CD* is 5 units. Use this information to calculate the value of *x*. Explain how you determined your answer.



$$\frac{2x+5}{11x-4} = \frac{5}{10}$$

Corresponding sides:
DC & BC
DE & BA
EC & AC
Corresponding angles:
∠A & ∠E
∠B & ∠D
∠DCE & ∠ACB

Homework

Finish 4.2

Aug 24-2:00 PM