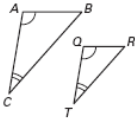


### §7.3 Identifying Similar Triangles

- The triangles shown are similar. List all pairs of congruent angles and write the statement of proportionality.



Angles

Statement of Proportionality

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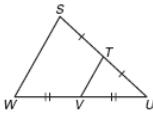
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Angles

Statement of Proportionality

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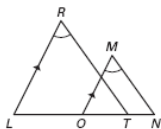
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Angles

Statement of Proportionality

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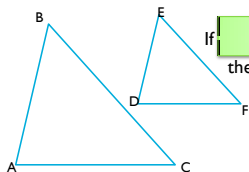
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Postulate:  
Angle-Angle (AA) Similarity Postulate

- If  then the .



If   
then

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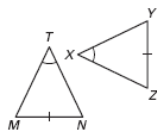
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Example.

- Decide whether the triangles can be proved similar. If they are similar, write a similarity statement. If they are not similar, explain why.




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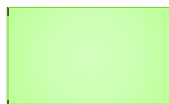
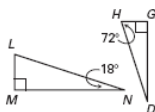
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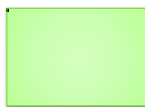
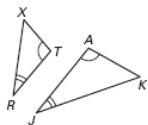
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### Example.

- Decide whether the triangles can be proved similar. If they are similar, write a similarity statement. If they are not similar, explain why.




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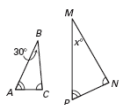
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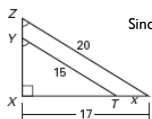
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### Example. The triangles are similar. Find the value of the variable.



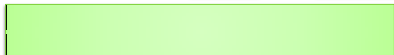
Since they're similar, they have   
If we first write a similarity statement, we see

Therefore,  so



Since they're similar, they have   
If we first write a similarity statement, we see

Therefore,  and so




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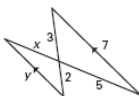
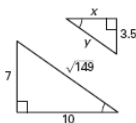
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### You Try It.

- The triangles are similar. Find the value of the variables.




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Example. Are the triangles similar? If so, state the similarity theorem and the postulate or theorem that justifies your answer.

No,  are marked as being congruent, so that leaves us with only the  theorem to check.

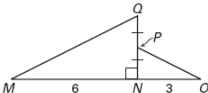
?

[illegible]

Example. Are the triangles similar? If so, state the similarity and the postulate or theorem that justifies your answer.

We have two right angles formed by the perpendiculars, so we have 1 pair of congruent angles.  by the  Theorem.

We also have that  so that means  is  That means we should check to see if  Similarity works.



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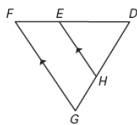
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Example. Are the triangles similar? If so, state the similarity and the postulate or theorem that justifies your answer.



Given those parallel lines, we can prove that  since they are .

Then, use the fact that  by the , and you can see that you have  of  in the two triangles.

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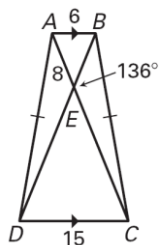
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Example. Use the diagram shown to complete the statements.



$$\triangle AEB \sim \underline{\hspace{1cm}} ?$$

$$m\angle DEC = \underline{\hspace{1cm}} ?$$

$$m\angle EBA = \underline{\hspace{1cm}} ?$$

$$EC = \underline{\hspace{1cm}} ?$$

$$\text{perimeter } \triangle DEC; \text{ perimeter } \triangle BEA = \underline{\hspace{1cm}} ?$$

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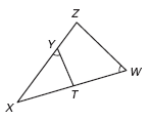
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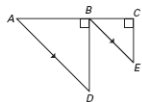
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Yes, there are 2 proofs on your homework.

- Remember a few things...
  - There are often shared pieces when triangles overlap.



- Take nothing for granted.




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