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\_\_\_\_\_ This lesson is designed to help students to discover the properties of similar triangles. They will be asked to determine the general conditions required to verify or prove that two triangles are similar and specifically understand the concept of proportionality. This lesson is intended to be used as a way to introduce these concepts with the idea that formal postulates for proving triangle similarity will be supplied later.

\_\_\_\_\_ This warm-up contains review problems regarding triangle congruence and parallel lines and transversals.

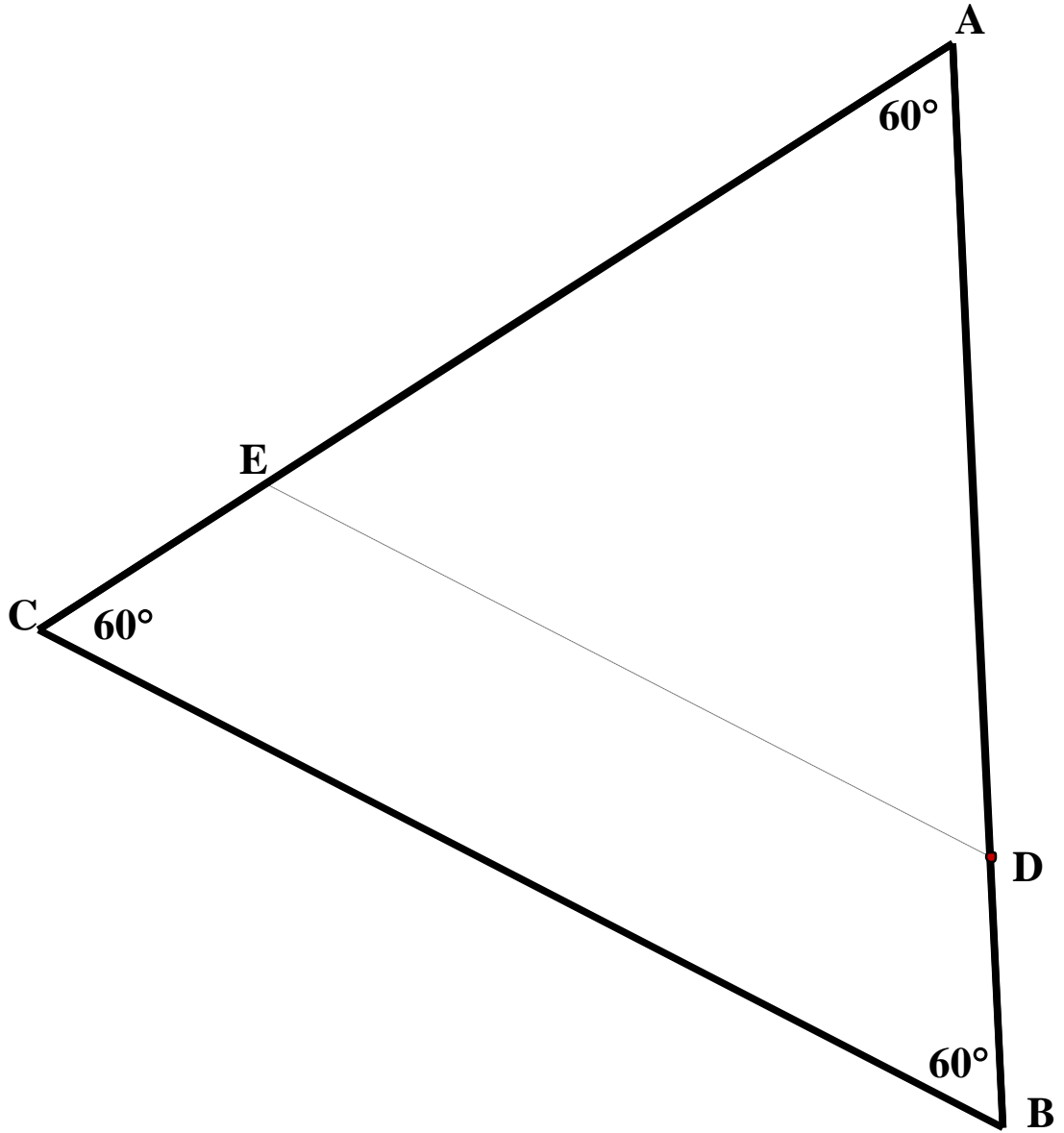
\_\_\_\_\_ : Student handouts with black line masters of triangles, tracing paper, rulers, warm-ups, investigations, student pairings, and calculators (optional). Have an extra worksheet on hand that addresses similarity so that students who finish early may practice more while others finish.

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\_\_\_\_\_ Depending on your book and your department, it may be best to discuss how you would like students to write

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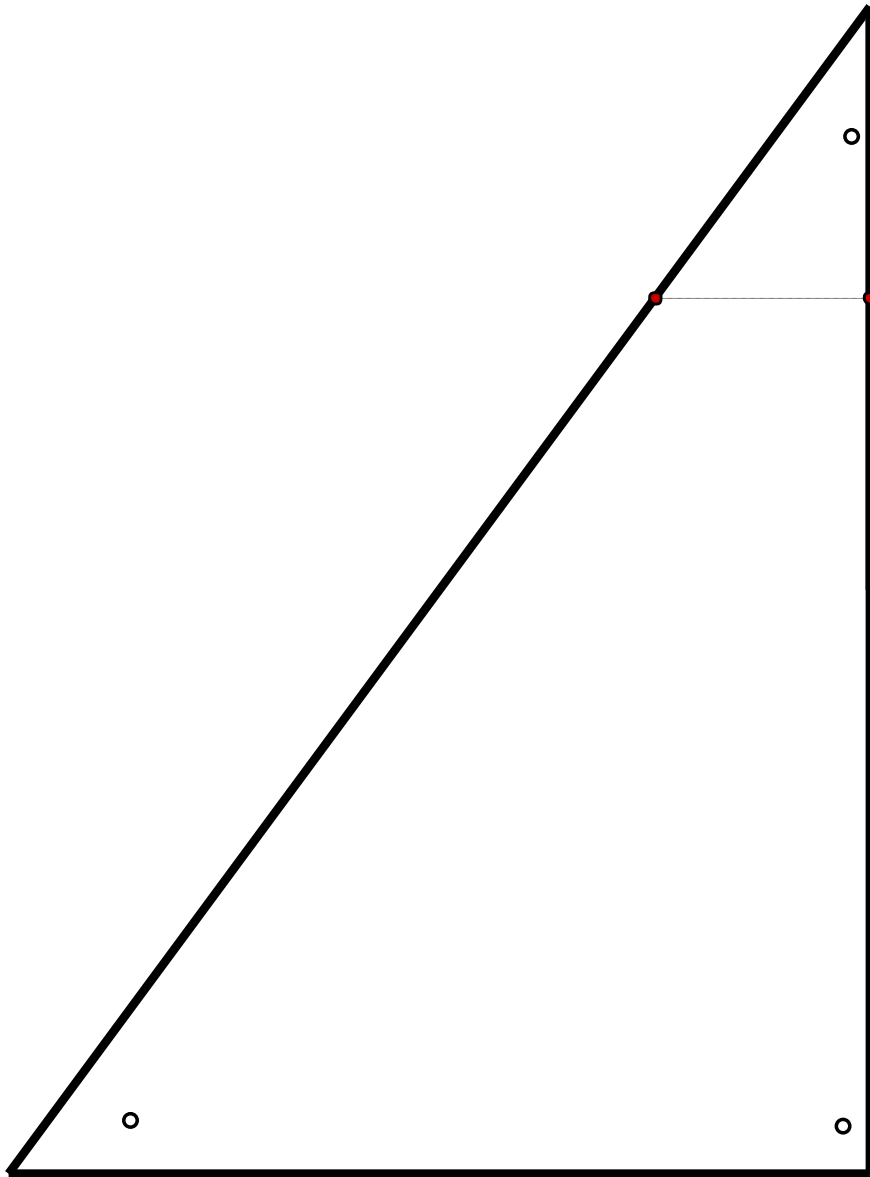
Triangle #1





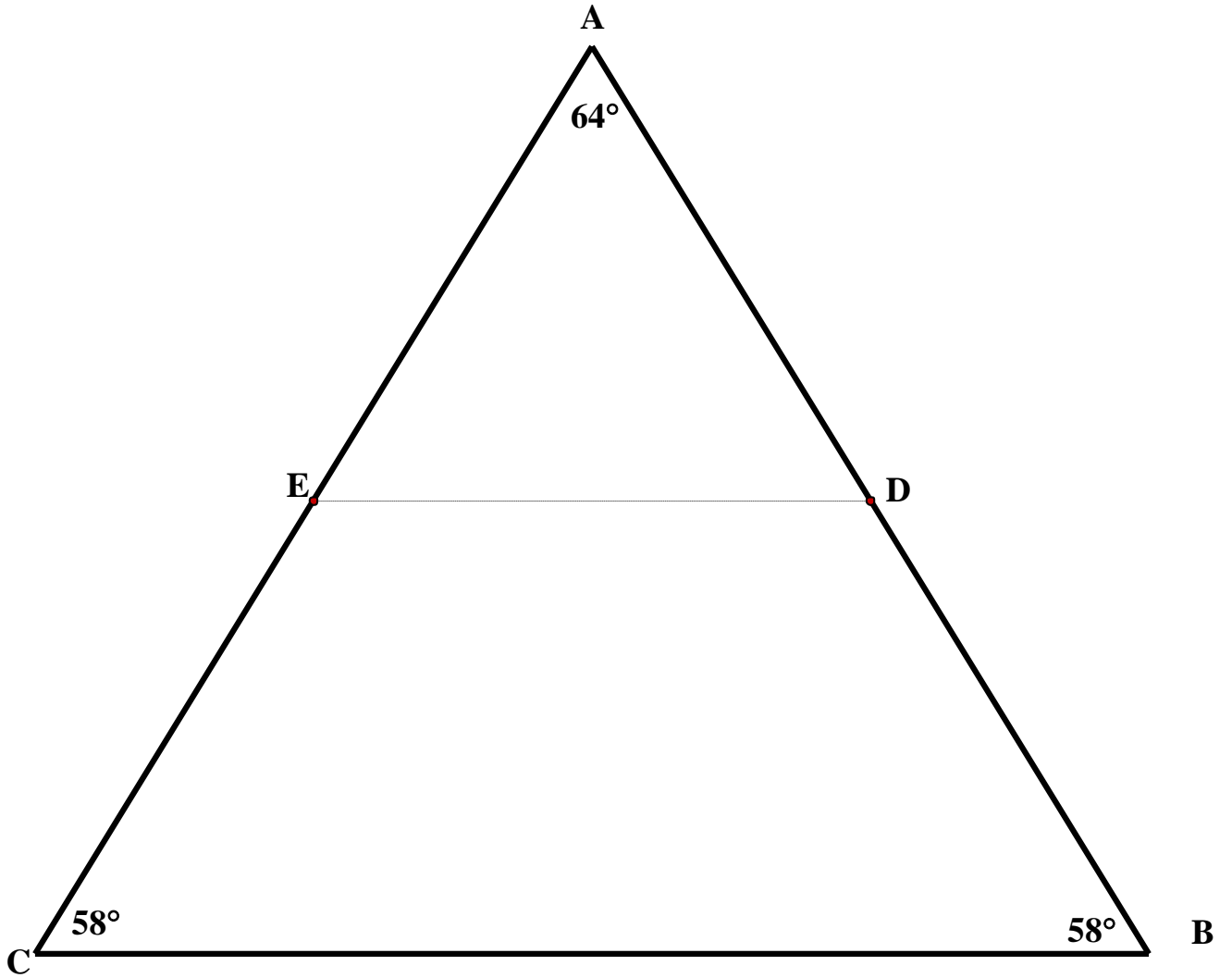
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Triangle #3



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Triangle #4





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This lesson is designed to help you discover the properties of similar triangles and to specifically understand the concept of proportionality. You will be determining the general conditions required to verify or prove that two triangles are similar.

1. List all \_\_\_\_\_ that you know. There are five!  
Draw a picture of congruent triangles with the corresponding parts indicated for each postulate.


2. Do you believe that having all three angles of a triangle congruent is another way to prove triangle congruence? Is AAA a triangle congruence postulate? Why or why not?

Symbol for Congruence: \_\_\_\_\_ Symbol for Equality: \_\_\_\_\_

3. Draw several examples of pairs of triangles that have the same shape (corresponding angles are congruent) but that are not the same size.

4. Can you think a word that you could use to describe these triangles that look very much alike?



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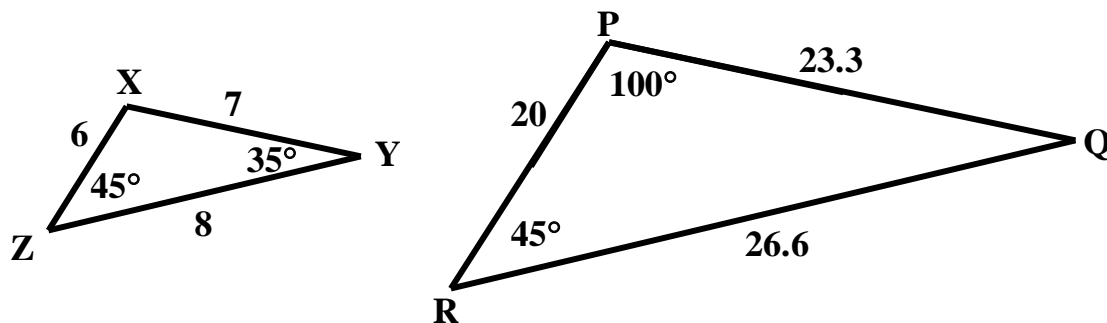


What have you discovered about

In your opinion, what \_\_\_\_\_ must be met in order for triangles to be considered similar?  
Do you think that these same conditions could apply to any closed figure? (Hexagon? Pentagon?)

\_\_\_\_\_

The two triangles below are similar. Explain why.  
( Check all measures of corresponding angles and compare ratios of corresponding sides.)



For what values of  $a$  and  $b$  are the two triangles similar?

( The sides must be proportional; you will have to write a proportion.)

Here are two triangles that appear to be similar. Assign angle measures and side lengths that will \_\_\_\_\_ your two triangles similar. Have your partner verify that you created similar triangles.

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In the diagram below, .

Which of the following conclusions does  
have to be true?

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Use the proof to answer the question below.

:  $\overline{AB} \cong \overline{BC}$ ; is the midpoint of  $\overline{AC}$ .

:  $\triangle ABC \cong \triangle CBA$

