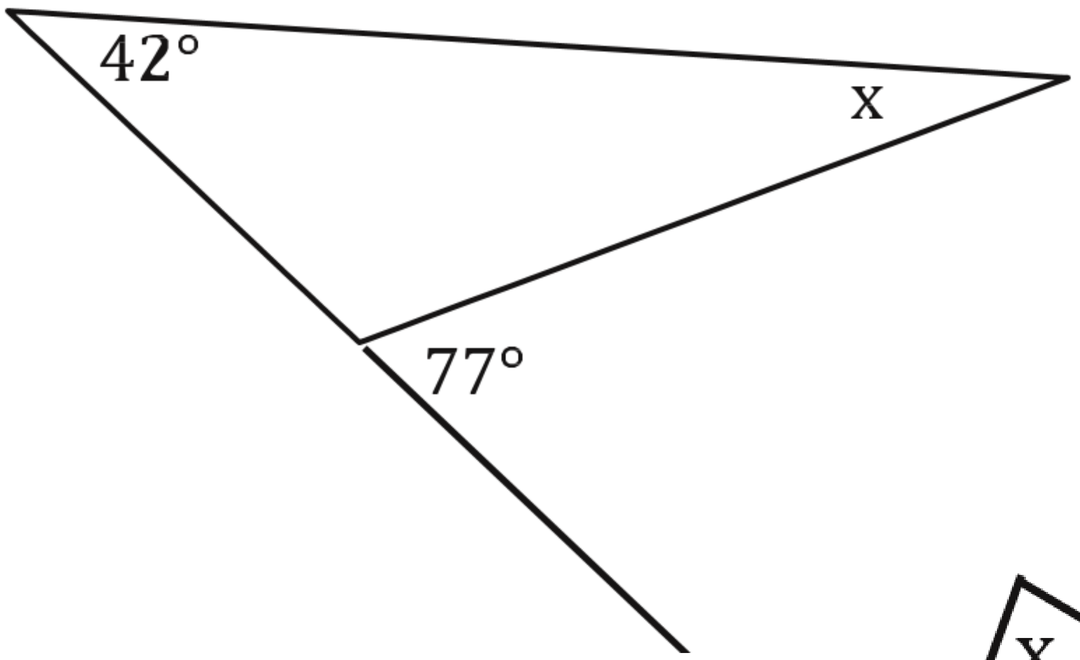
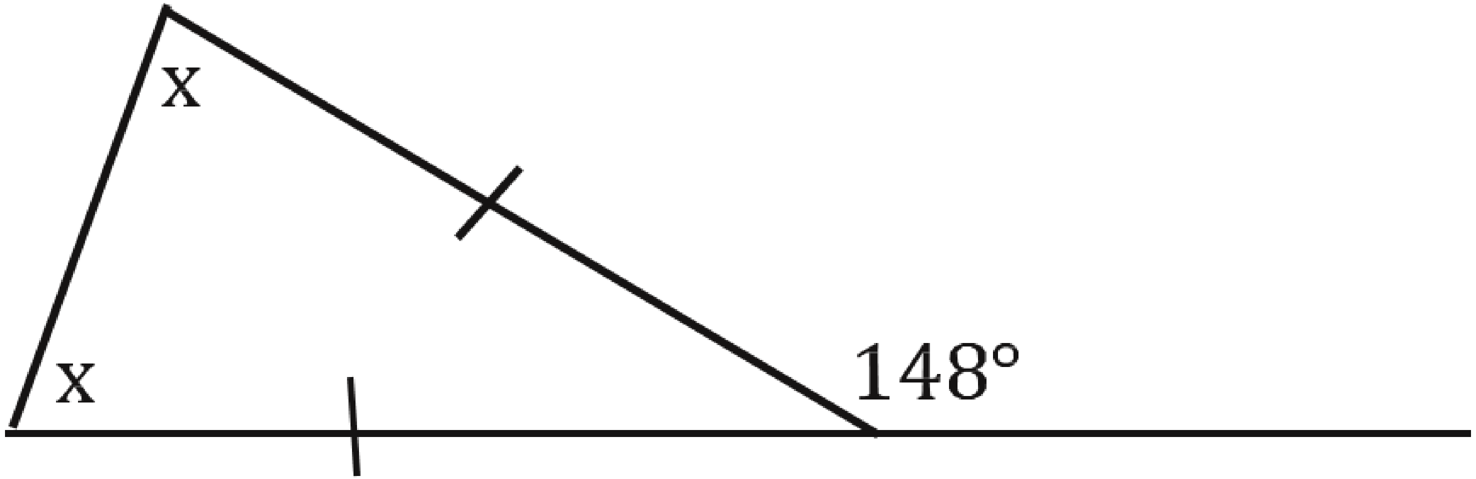
Warm Up

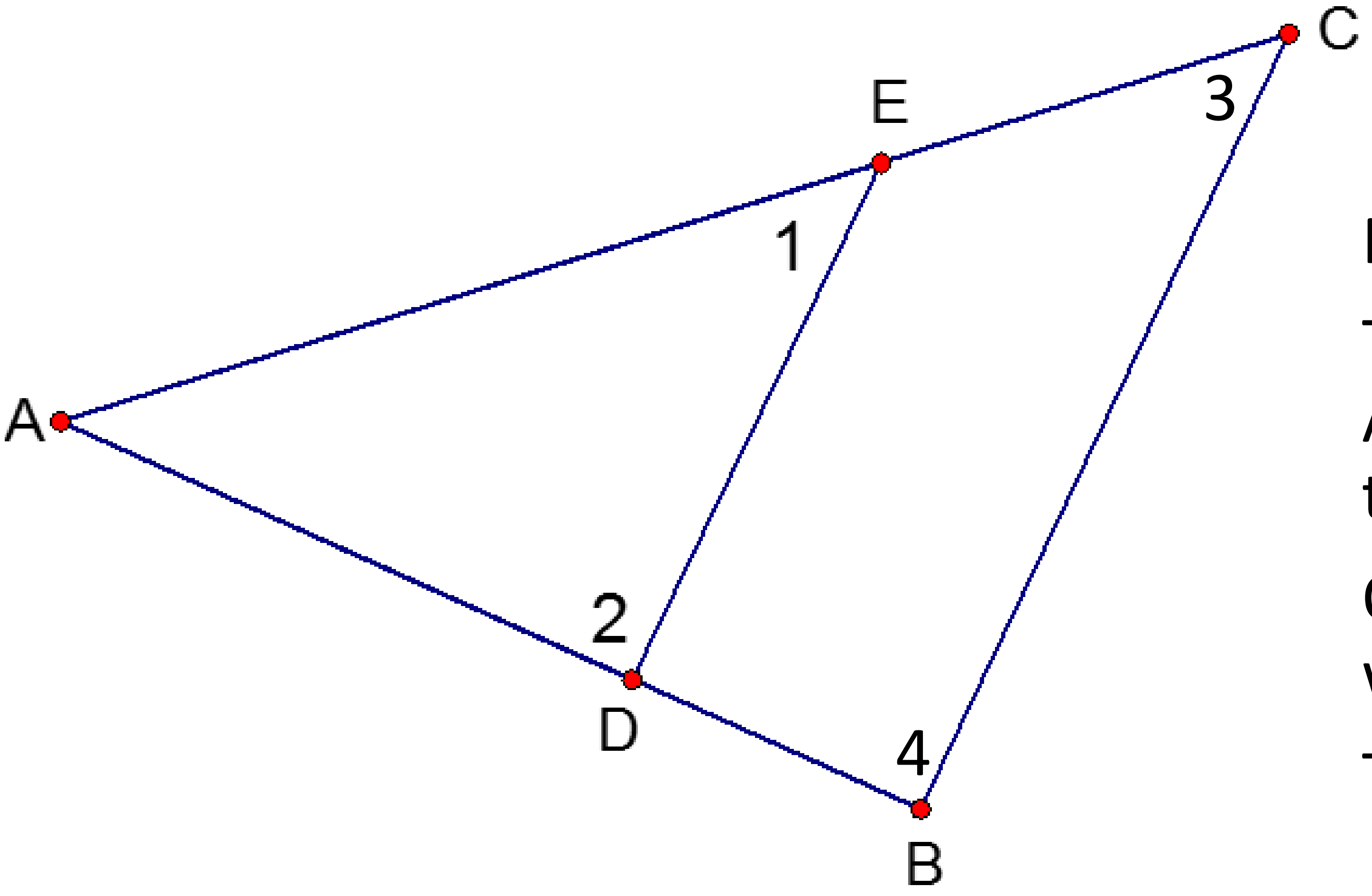




Homework

1) 58	2) 50	3) 30	4) 45	5) 145	6) 135
7) 130	8) 85	9) 21	10) 70	11) 64	12) 31
13) 85	14) 31	15) 137	16) 109	17) -3	18) 6
19) -6	20) -11	21) 44	22) 30	23) 30	24) 35

Notes – Proving Triangles are Similar



Remember this?

This is a special case where triangle ABC has been dilated to form triangle ADE.

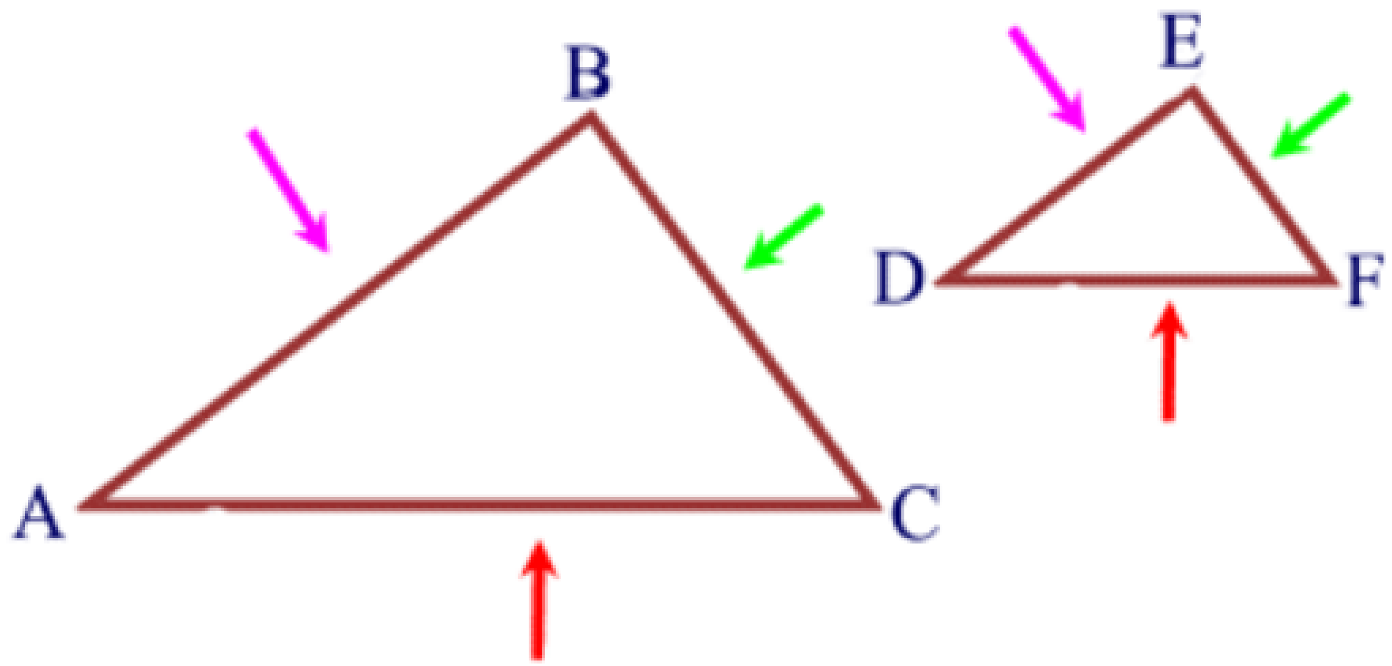
On Thursday we claimed these were similar.

Today we will learn how to prove it.

Notes – Proving Triangles are Similar

There are three ways we know triangles are similar:

1. If all sides are proportional. (SSS postulate)
   - Remember a proportion is when two ratios are equivalent.
   - A ratio is a comparison between two numbers using division (sometimes a colon instead).



If: $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$

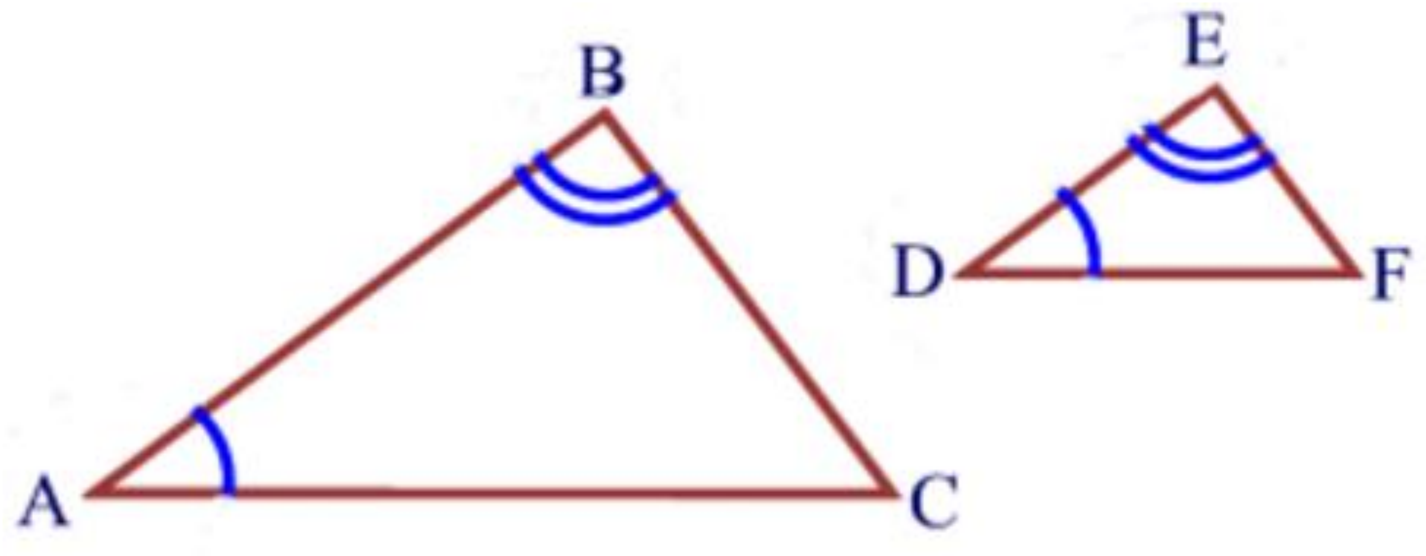
Then: $\Delta ABC \sim \Delta DEF$

Notes – Proving Triangles are Similar

There are three ways we know triangles are similar:

2. If two angles have the same measure. (AA postulate)

- Given two angles have the same measure we can show the pair of 3rd corresponding angles are equal using the triangle sum theorem.



If: $\measuredangle A \cong \measuredangle D$

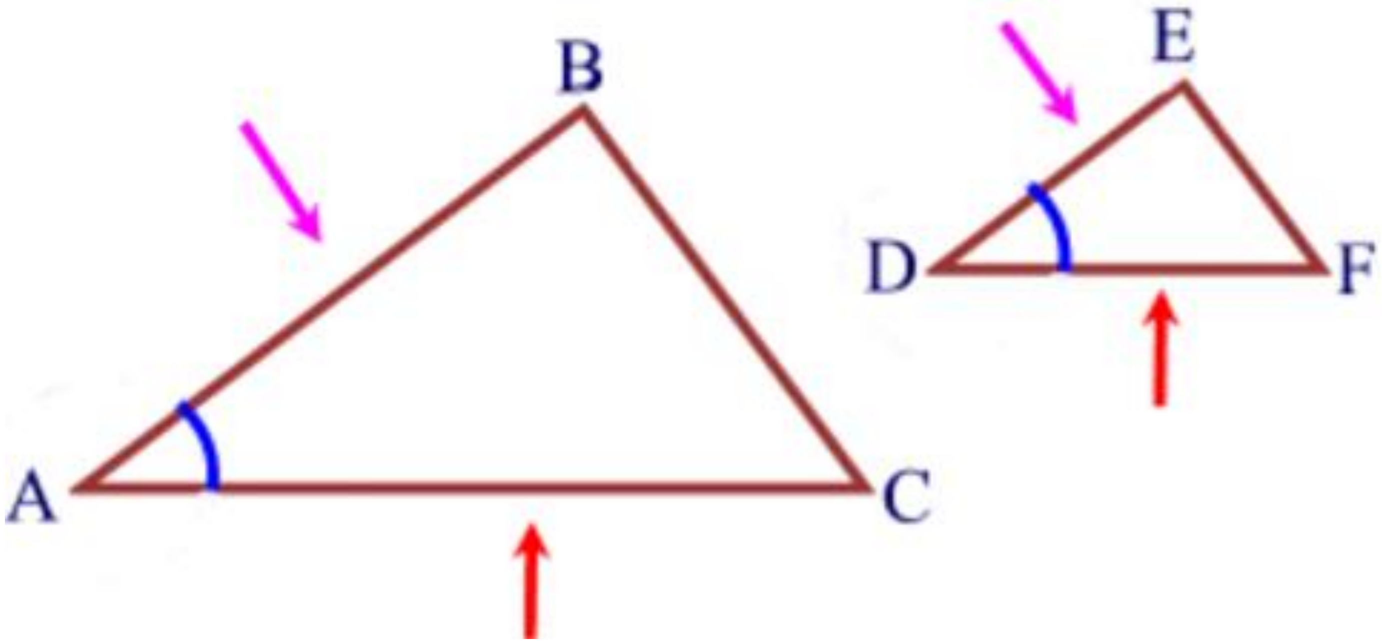
$\measuredangle B \cong \measuredangle E$

Then: $\Delta ABC \sim \Delta DEF$

Notes – Proving Triangles are Similar

There are three ways we know triangles are similar:

3. If two sides are proportional and the included corresponding angles are congruent. (SAS postulate)



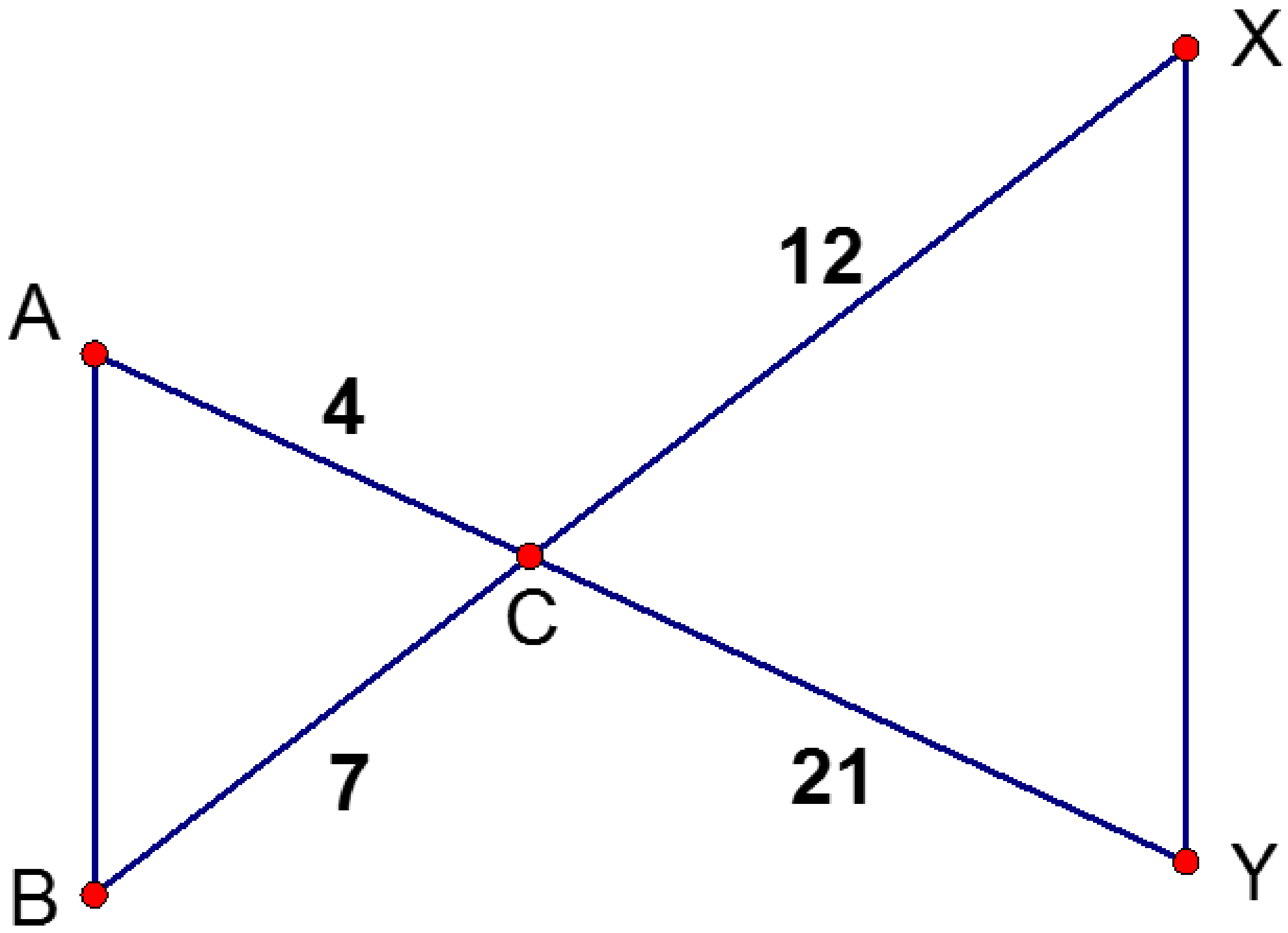
If: $\measuredangle A \cong \measuredangle D$

$$\frac{AB}{DE} = \frac{AC}{DF}$$

Then: $\Delta ABC \sim \Delta DEF$

Note: These could be theorems (remember, theorems are proven and postulates are not) but I will not prove them in this course, so we will take them as truth and call them postulates.

Notes – Proving Triangles are Similar



Are the triangles similar? If so, state the postulate.

<u>KEY NOTATION POINT</u>

The order of the letters matters!!

$\Delta ABC \sim \Delta XYC$

This tells the reader:

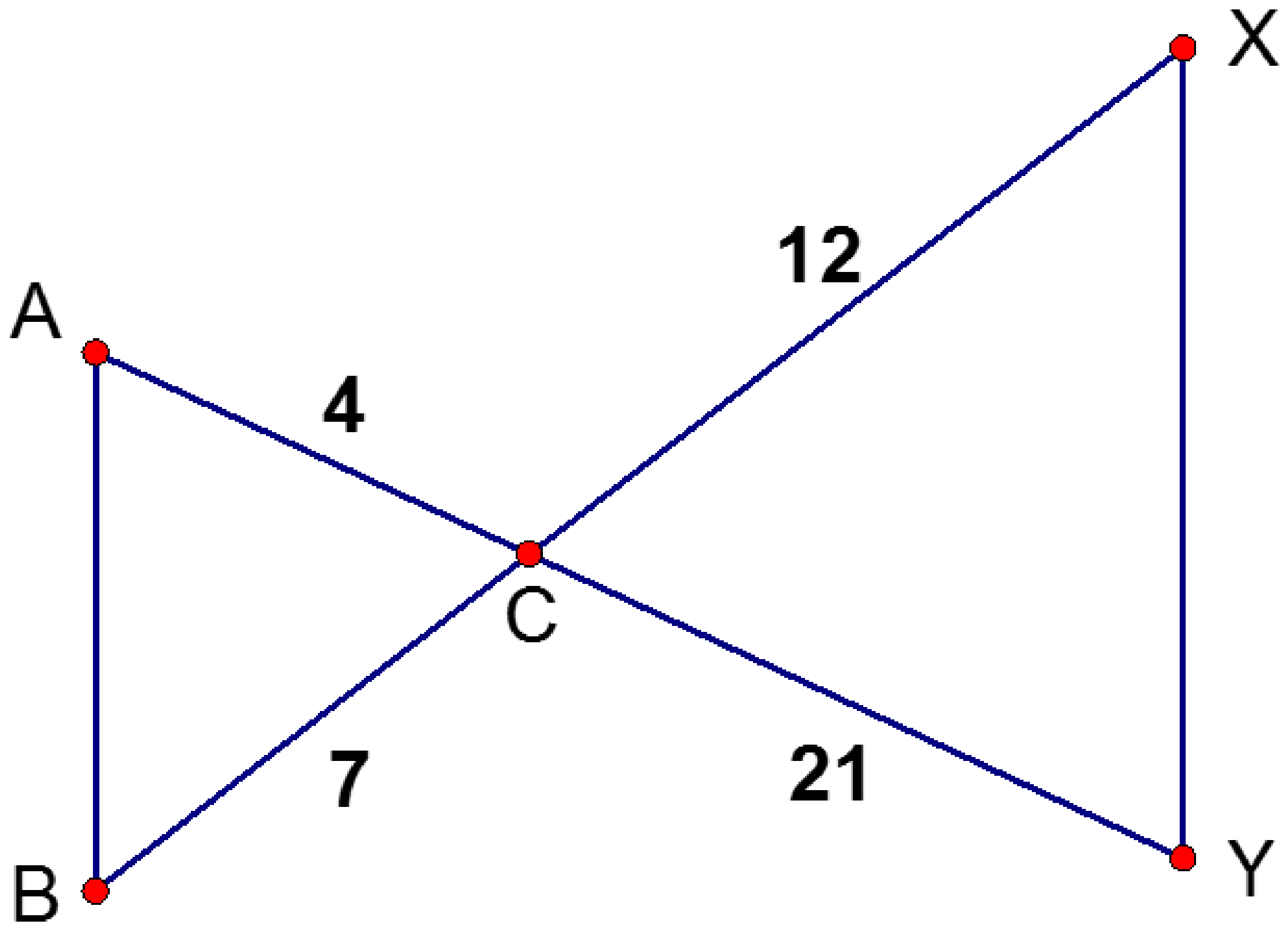
$< A \cong < X$

$< B \cong < Y$

$< ACB \cong < XCY$

Bonus: What property tells us the third is true?

Notes – Proving Triangles are Similar



KEY NOTATION POINT

The order of the letters matters!!
$\Delta ABC \sim \Delta XYC$

We know $< A \cong < X$ because
$\frac{\overline{BC}}{\overline{YC}} = 3$

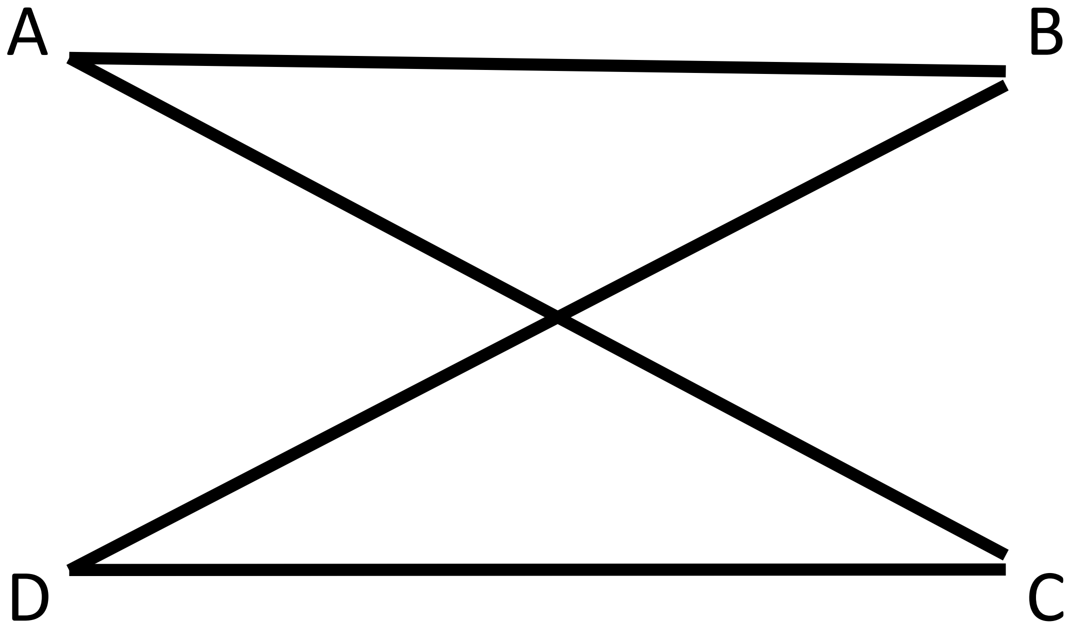
Similarly

Notes – Proving Triangles are Similar

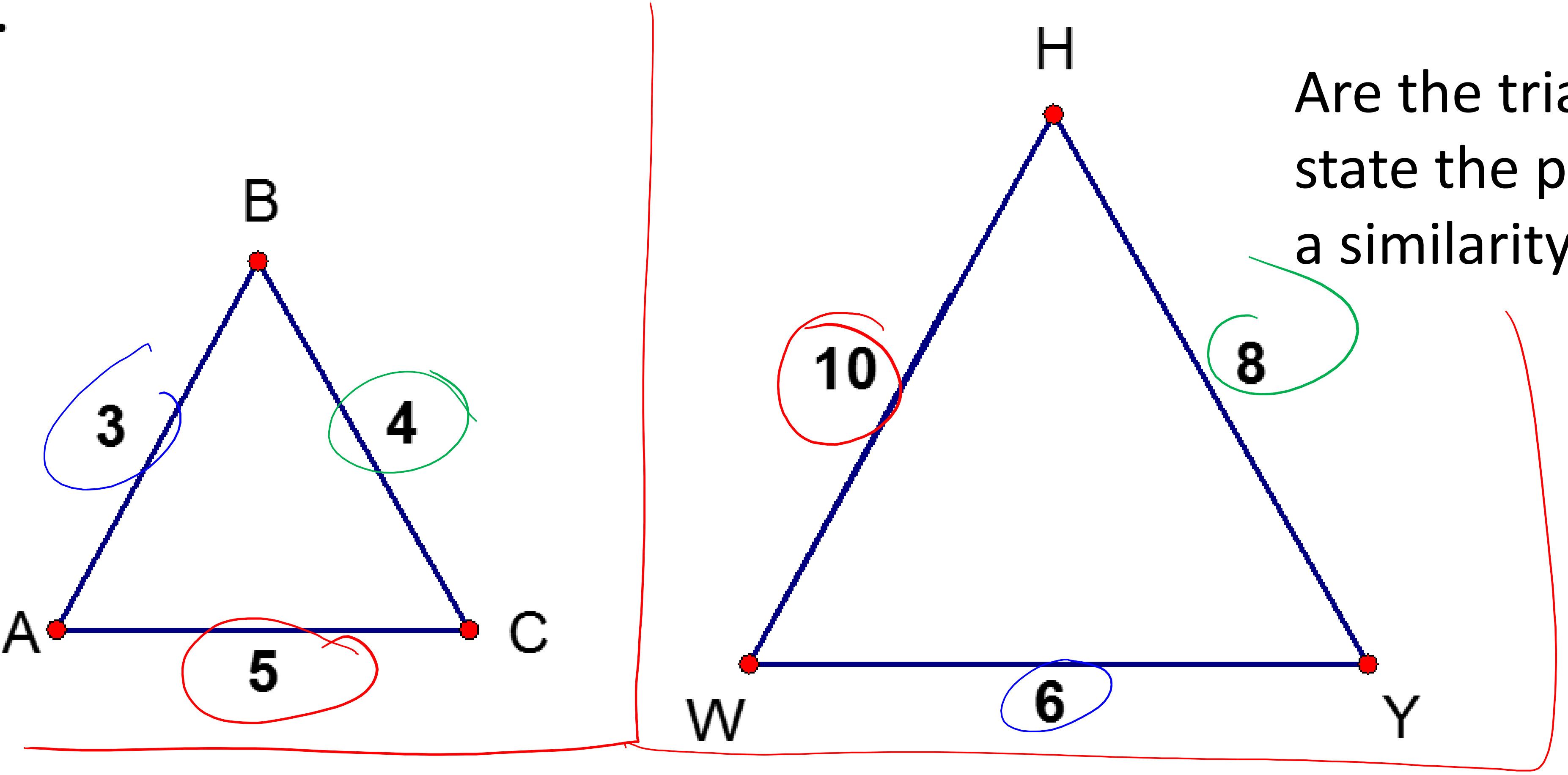
Tangential statement: another reason why order matters.

Consider rectangle ABCD, shown below. The order (ABCD) tells the reader to draw a line from A to B, then B to C, and so forth.

If I called it ACDB, I would be referring to the same points, but that figure would look like this:



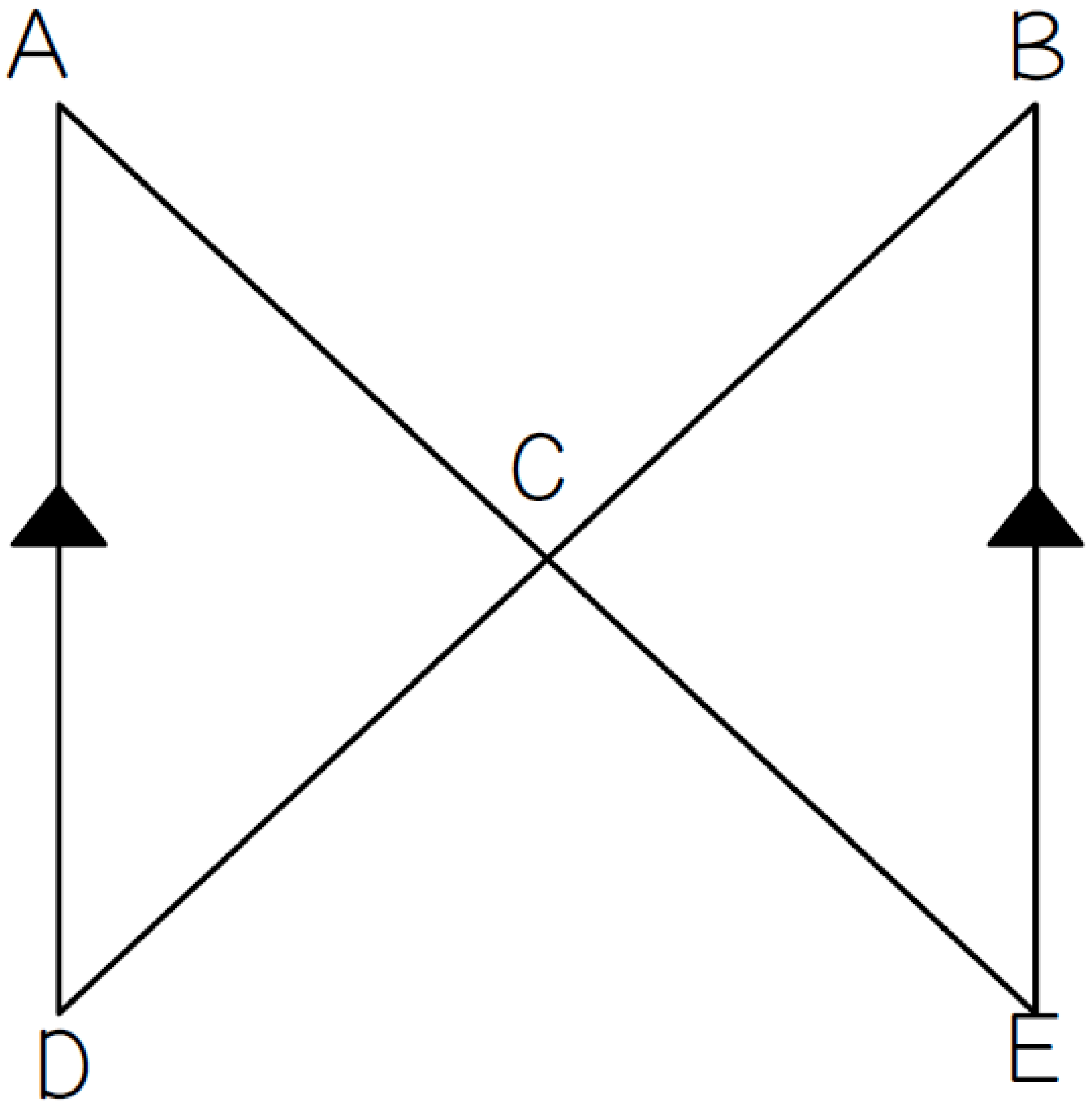
Notes – Proving Triangles are Similar



Are the triangles similar? If so, state the postulate and write a similarity statement.

$\frac{10}{5} = \frac{8}{4} = \frac{6}{3}$ 2

Notes – Proving Triangles are Similar



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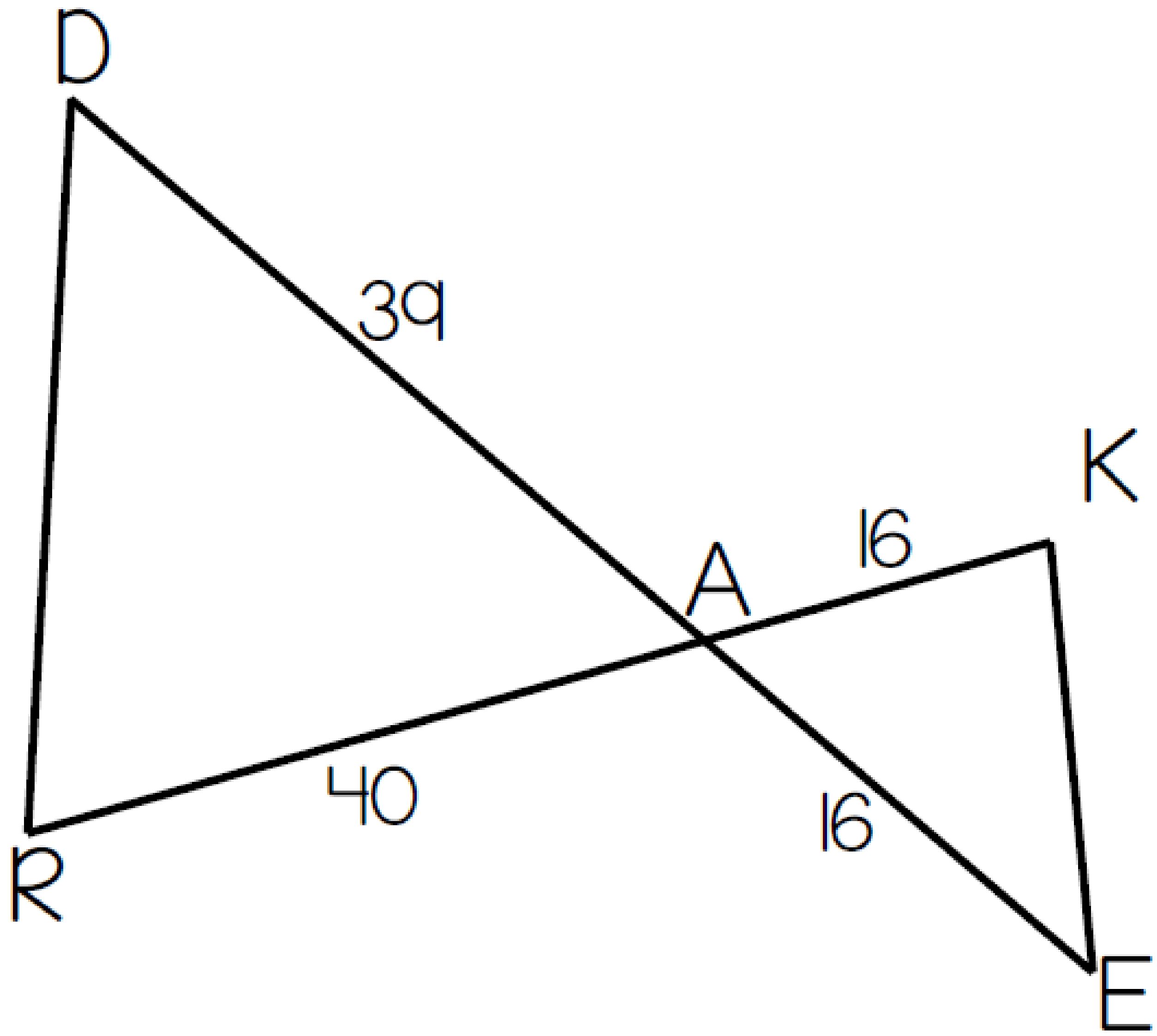

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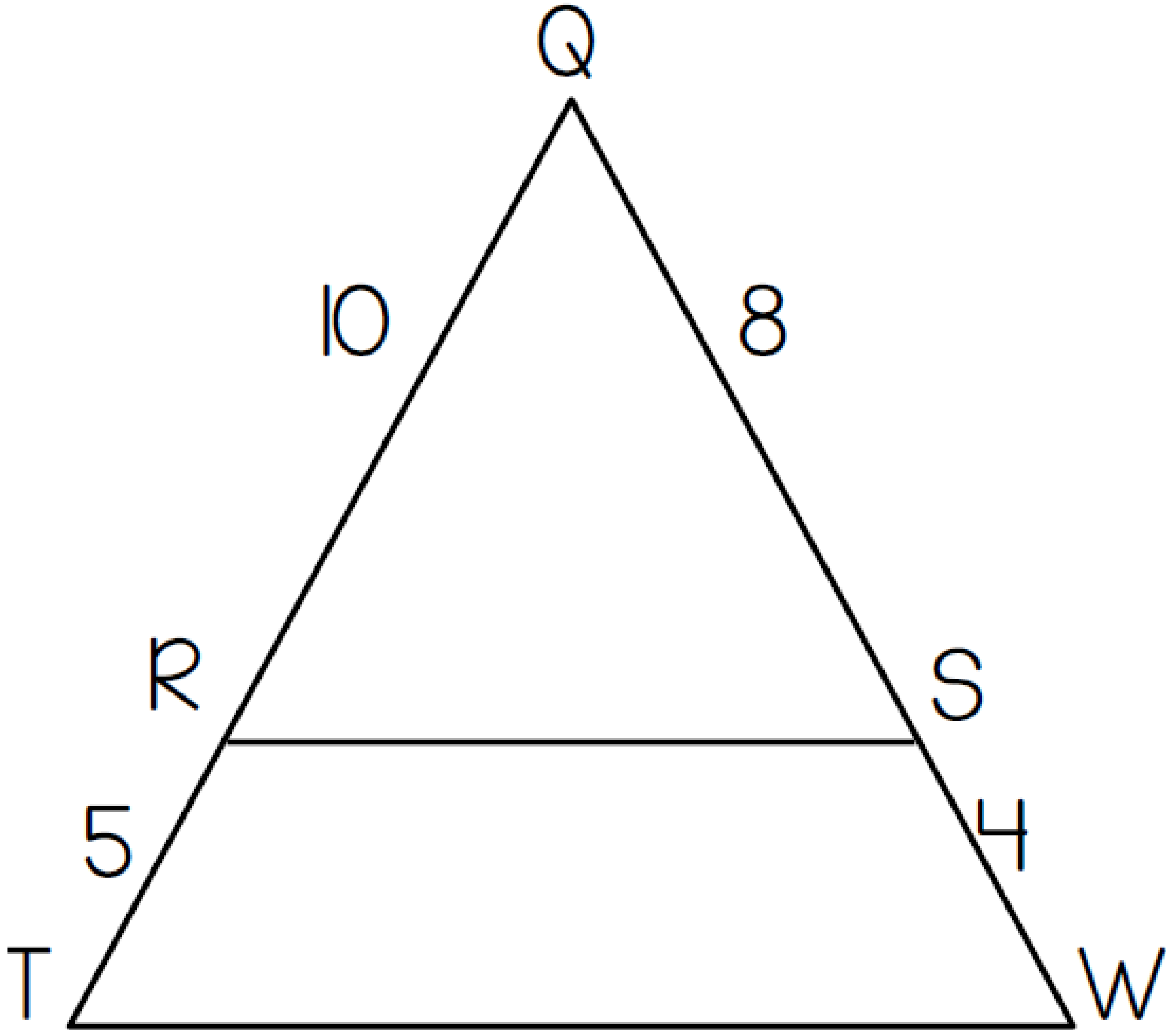
Notes – Proving Triangles are Similar



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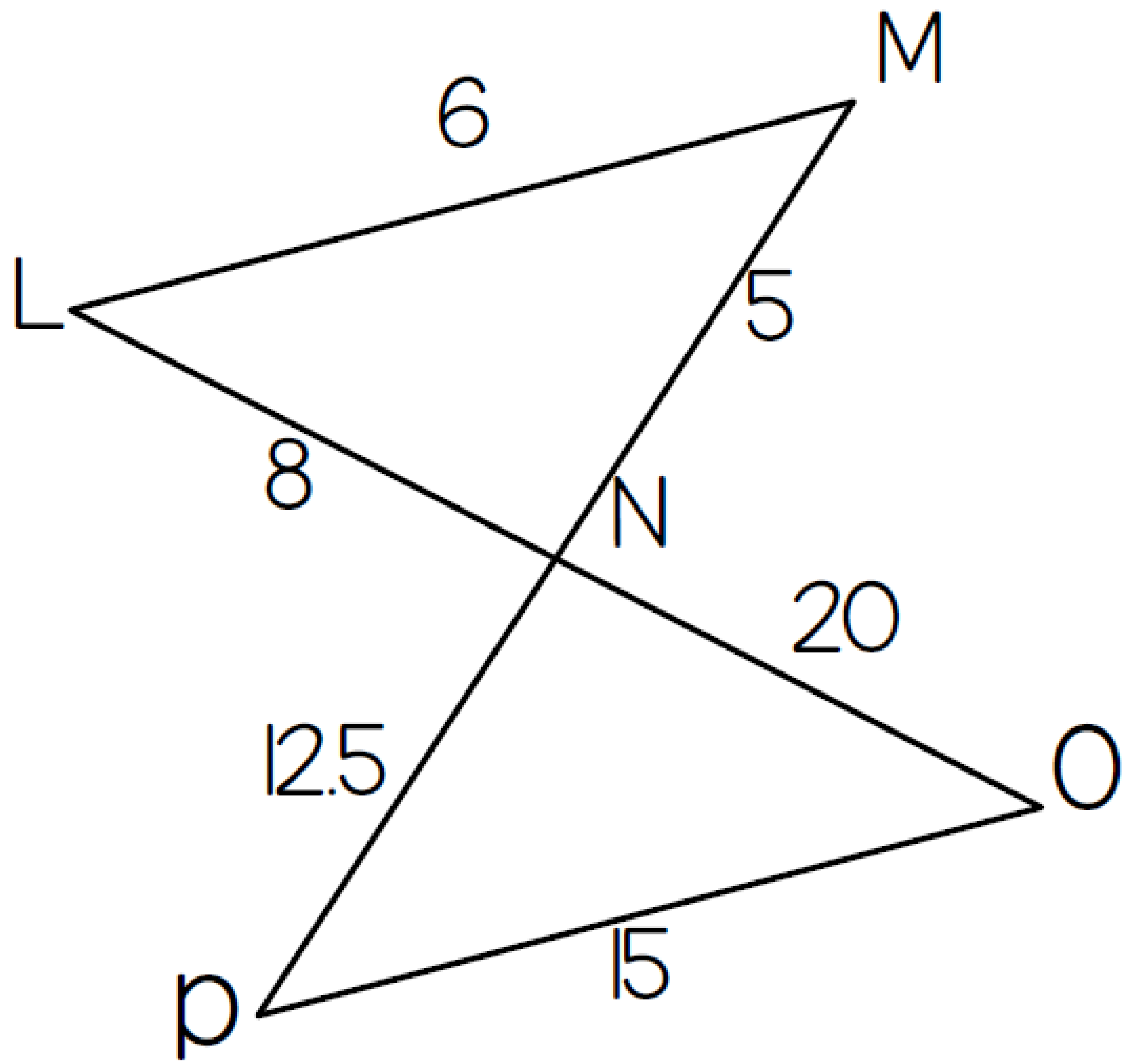

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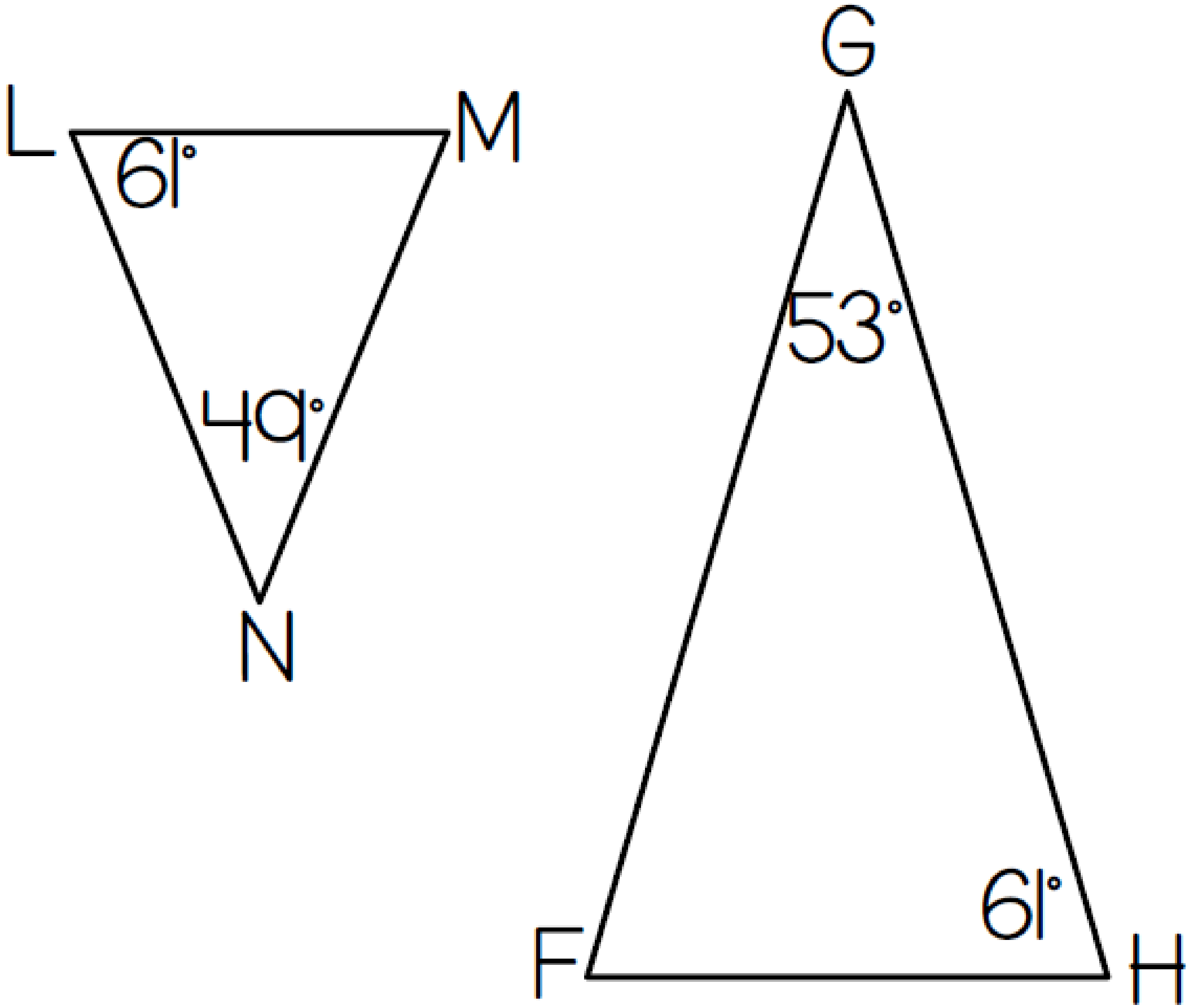

Are the triangles similar? If so, state the postulate and write a similarity statement.

Your HW is 7-4.