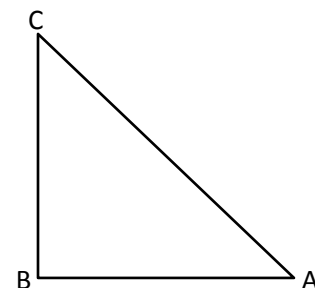
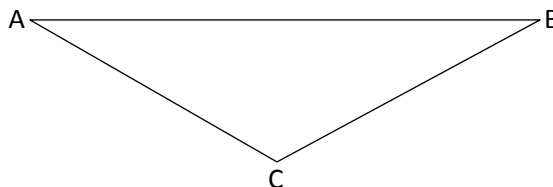
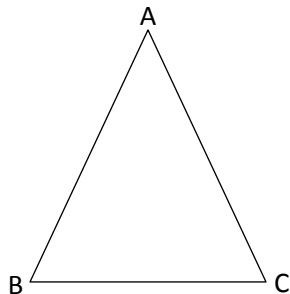


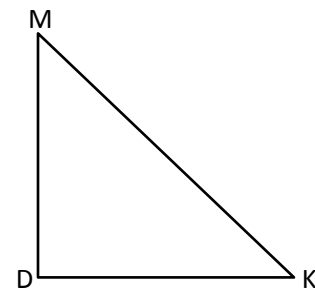
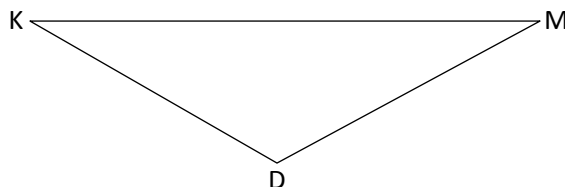
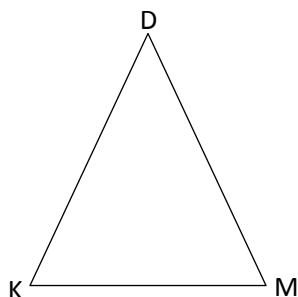
**Warm Up**

What does it mean for an angle of a triangle to be “included?” Use the examples below to help you write a definition.

Set 1: Highlight  $\overline{AB}$  and  $\overline{AC}$ , then mark  $\angle A$ .  $\angle A$  is the included angle between  $\overline{AB}$  and  $\overline{AC}$ .



Set 2: Highlight  $\overline{DK}$  and  $\overline{KM}$ , then mark  $\angle D$ .  $\angle D$  is **NOT** the included angle between  $\overline{DK}$  and  $\overline{KM}$ .



Based on the examples above, what does it mean for an angle to be **included** between two sides?

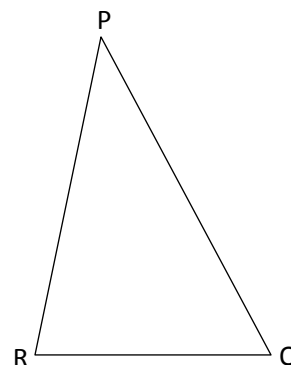
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**Practice:**

Use  $\triangle PQR$  to answer the following questions.

1. In  $\triangle PQR$ ,  $\angle P$  is the included angle between which 2 sides?
2. In  $\triangle PQR$ , which angle is included between  $\overline{PR}$  and  $\overline{RQ}$ ?
3. In  $\triangle PQR$ ,  $\overline{PQ}$  is the included side between which 2 angles?



## Triangle Congruence Activity

### Part 1:

1. In your group, try to construct the following triangles.
2. Start by drawing them on your paper and once you feel you have it accurately drawn, cut it out CAREFULLY. **Be sure to label all the dimensions (side lengths and angle measures) and put the letter of the drawing in the center of your cut out.** *You may want to divide up the work amongst the group members so you can complete all the triangles.*
3. Have another member of your group measure your triangle to check its accuracy.
4. Once you have made all the triangles, tape them up on the board under the appropriate heading.

### Triangles:

- A. Construct a triangle with side lengths 10 cm x 7 cm x 9 cm.
- B. Construct a triangle with side lengths 10 cm and 14 cm and included angle  $40^\circ$ .
- C. Construct a triangle with angle measurements of  $100^\circ$  and  $50^\circ$ .
- D. Construct a triangle with side lengths 13 cm and 16 cm and NON-included angle  $40^\circ$ .  
(*Hint: Construct one side 1<sup>st</sup> and then put the angle at one end.*)

**Part 2:**

1. What do you notice about the triangles taped under heading "A"?
2. What information were you given to build Triangle A?
3. What do you notice about the triangles taped under heading "B"?
4. What information were you given to build Triangle B?
5. What do you notice about the triangles taped under heading "C"?
6. What information were you given to build Triangle C?
7. What do you notice about the triangles taped under heading "D"?
8. What information were you given to build Triangle D?

Conclusion:

When given any two triangles with the following properties, the triangles will always be \_\_\_\_\_:

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## Triangle Congruence Activity

### Part 1:

1. In your group, try to construct the following triangles.
2. Start by drawing them on your paper and once you feel you have it accurately drawn, cut it out CAREFULLY. **Be sure to label all the dimensions (side lengths and angle measures) and put the letter of the drawing in the center of your cut out.** *You may want to divide up the work amongst the group members so you can complete all the triangles.*
3. Have another member of your group measure your triangle to check its accuracy.
4. Once you have made all the triangles, tape them up on the board under the appropriate heading.

### Triangles:

- A. Construct a triangle with side lengths 20 cm x 14 cm x 18 cm.
- B. Construct a triangle with side lengths 5 cm and 7 cm and included angle  $40^\circ$ .
- C. Construct a triangle with angle measurements of  $100^\circ$  and  $50^\circ$ .
- D. Construct a triangle with side lengths 19.5 cm and 24 cm and NON-included angle  $40^\circ$ .  
(*Hint: Construct one side 1<sup>st</sup> and then put the angle at one end.*)

**Part 2:**

1. What do you notice about the triangles taped under heading "A"?
2. What information were you given to build Triangle A?
3. What do you notice about the triangles taped under heading "B"?
4. What information were you given to build Triangle B?
5. What do you notice about the triangles taped under heading "C"?
6. What information were you given to build Triangle C?
7. What do you notice about the triangles taped under heading "D"?
8. What information were you given to build Triangle D?

Conclusion:

When given any two triangles with the following properties, the triangles will always be \_\_\_\_\_:

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