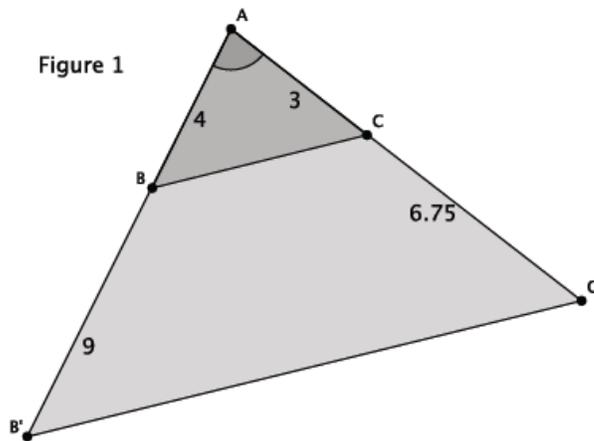


- c. Do your constructed triangles appear to be similar? Explain your answer.

- d. Do you think that the triangles can be shown similar without knowing the angle measures?

Exploratory Challenge 1/Exercises 1–2

- 1. Examine the figure and answer the questions to determine whether or not the triangles shown are similar.



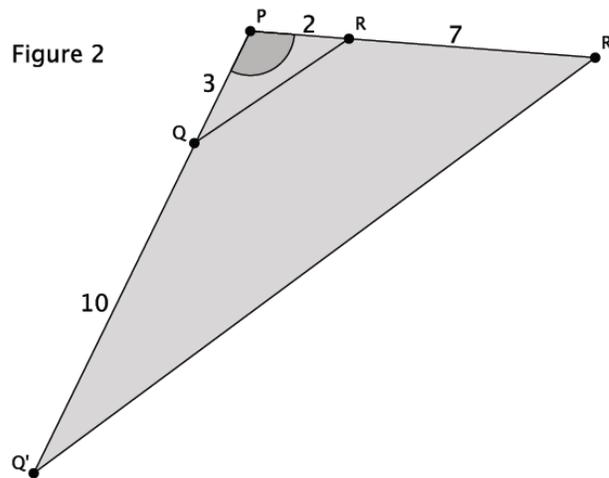
- a. What information is given about the triangles in Figure 1?

- b. How can the information provided be used to determine whether $\triangle ABC$ is similar to $\triangle AB'C'$?

c. Compare the corresponding side lengths of $\triangle ABC$ and $\triangle AB'C'$. What do you notice?

d. Based on your work in parts (a)–(c), draw a conclusion about the relationship between $\triangle ABC$ and $\triangle AB'C'$. Explain your reasoning.

2. Examine the figure, and answer the questions to determine whether or not the triangles shown are similar.

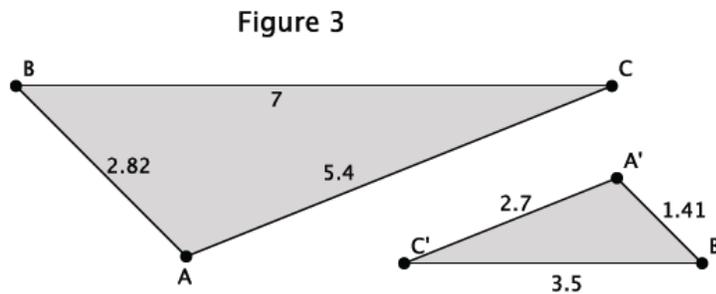


a. What information is given about the triangles in Figure 2?

- b. How can the information provided be used to determine whether $\triangle PQR$ is similar to $\triangle PQ'R'$?
- c. Compare the corresponding side lengths of $\triangle PQR$ and $\triangle PQ'R'$. What do you notice?
- d. Based on your work in parts (a)–(c), draw a conclusion about the relationship between $\triangle PQR$ and $\triangle PQ'R'$. Explain your reasoning.

Exploratory Challenge 2/Exercises 3–4

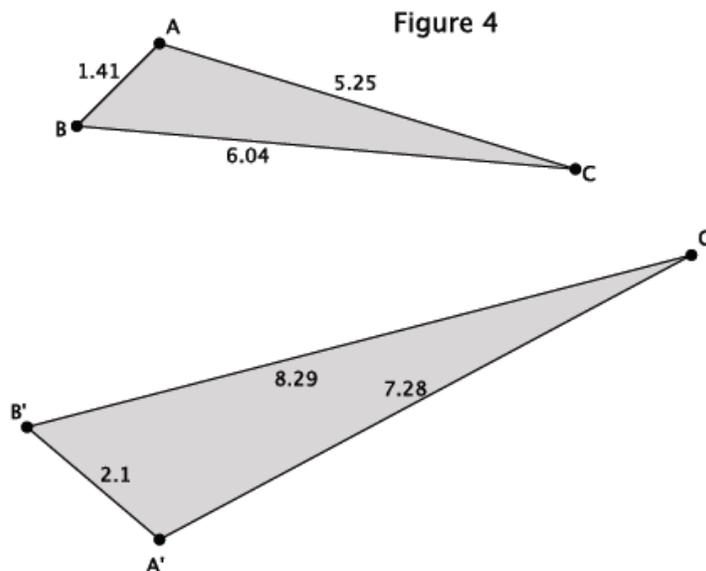
3. Examine the figure and answer the questions to determine whether or not the triangles shown are similar.



- a. What information is given about the triangles in Figure 3?

- b. How can the information provided be used to determine whether $\triangle ABC$ is similar to $\triangle AB'C'$?
- c. Compare the corresponding side lengths of $\triangle ABC$ and $\triangle AB'C'$. What do you notice?
- d. Based on your work in parts (a)–(c), make a conjecture about the relationship between $\triangle ABC$ and $\triangle AB'C'$. Explain your reasoning.

4. Examine the figure and answer the questions to determine whether or not the triangles shown are similar.



- a. What information is given about the triangles in Figure 4?

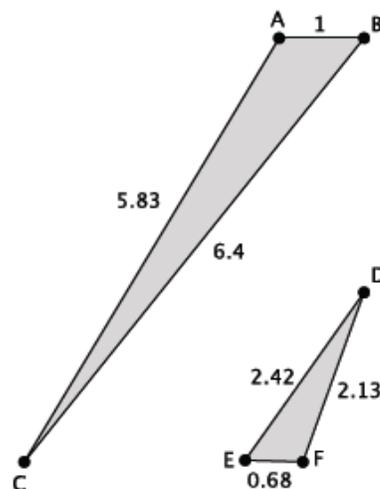
- b. How can the information provided be used to determine whether $\triangle ABC$ is similar to $\triangle AB'C'$?

- c. Compare the corresponding side lengths of $\triangle ABC$ and $\triangle AB'C'$. What do you notice?

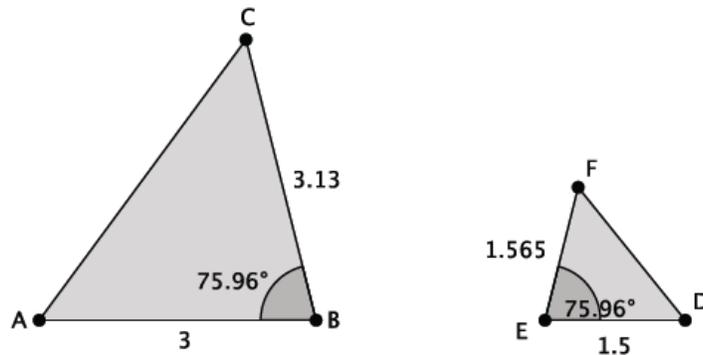
- d. Based on your work in parts (a)–(c), make a conjecture about the relationship between $\triangle ABC$ and $\triangle AB'C'$. Explain your reasoning.

Exercises 5–10

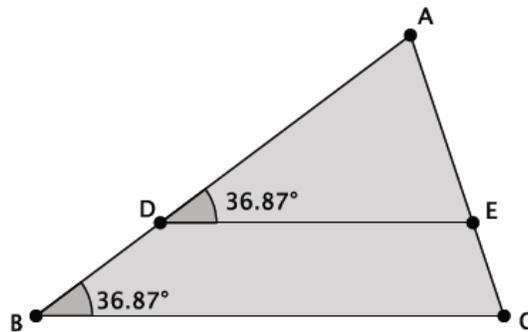
- 5. Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.



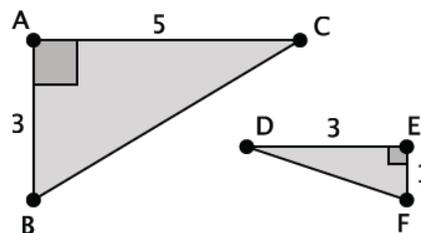
6. Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.



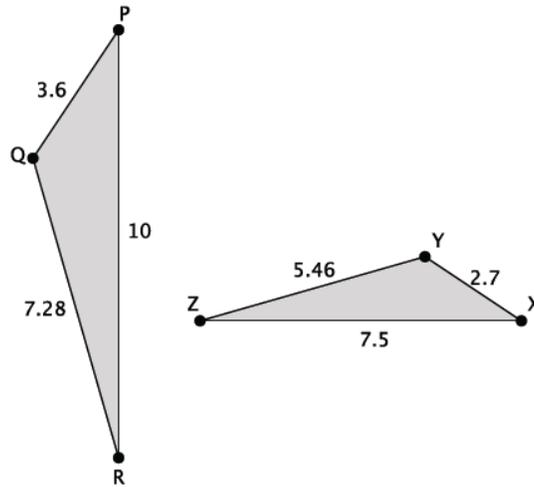
7. Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.



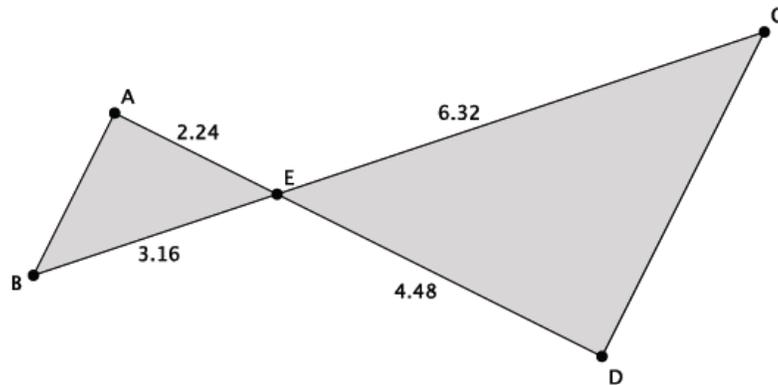
8. Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.



9. Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.



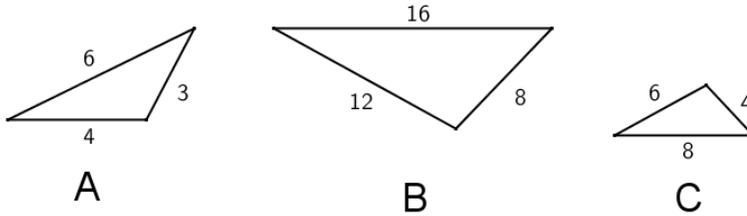
10. Are the triangles shown below similar? Explain. If the triangles are similar, write the similarity statement.



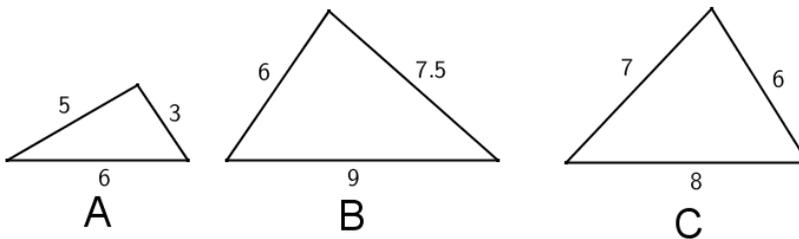
Problem Set

1. For each part (a) through (d) below, state which of the three triangles, if any, are similar and why.

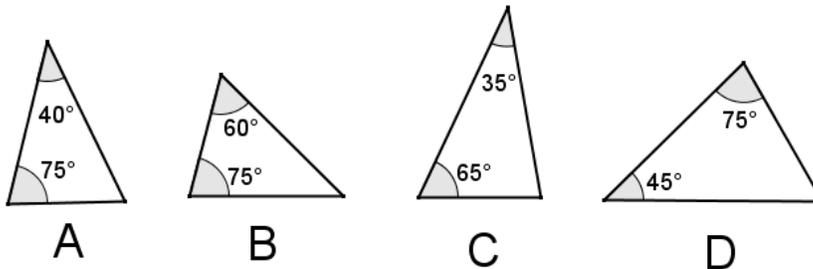
a.



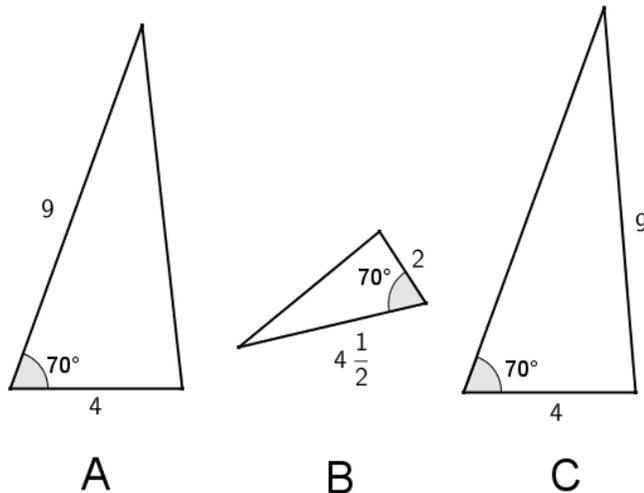
b.



c.

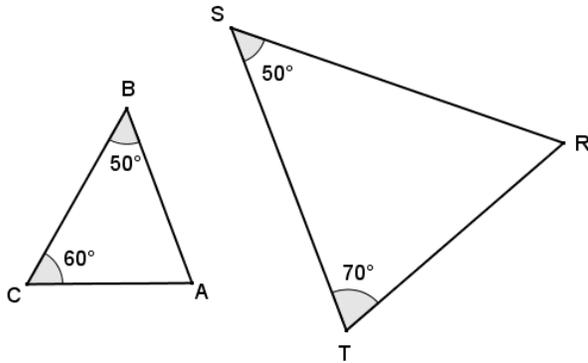


d.

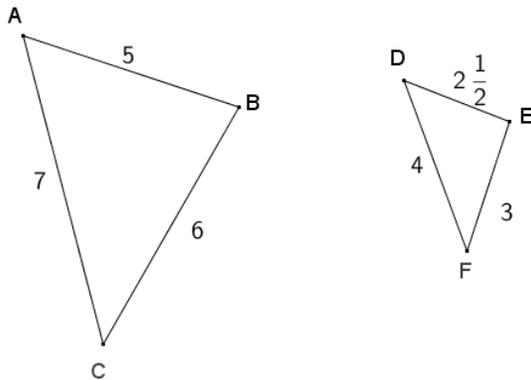


2. For each given pair of triangles, determine if the triangles are similar or not, and provide your reasoning. If the triangles are similar, write a similarity statement relating the triangles.

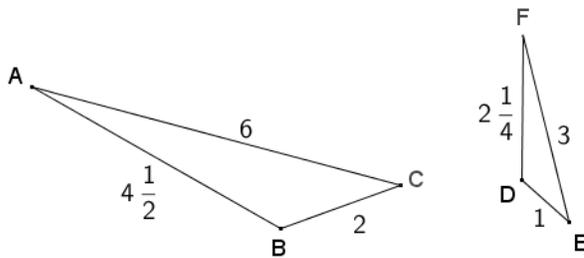
a.



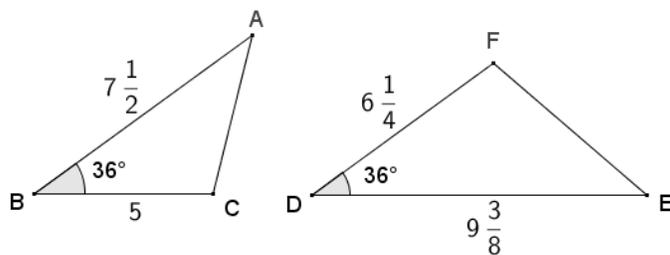
b.



c.

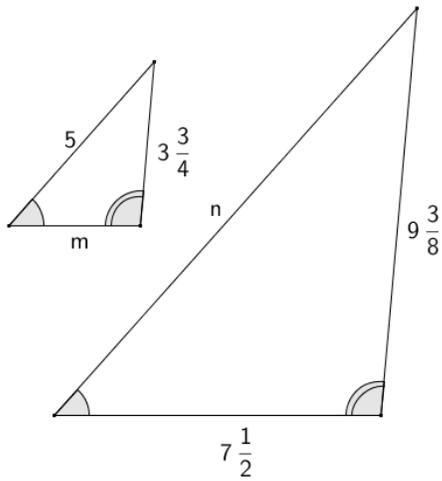


d.

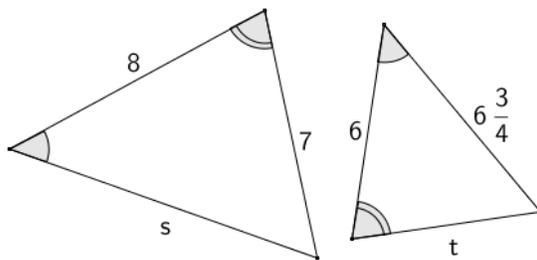


3. For each pair of similar triangles below, determine the unknown lengths of the sides labeled with letters.

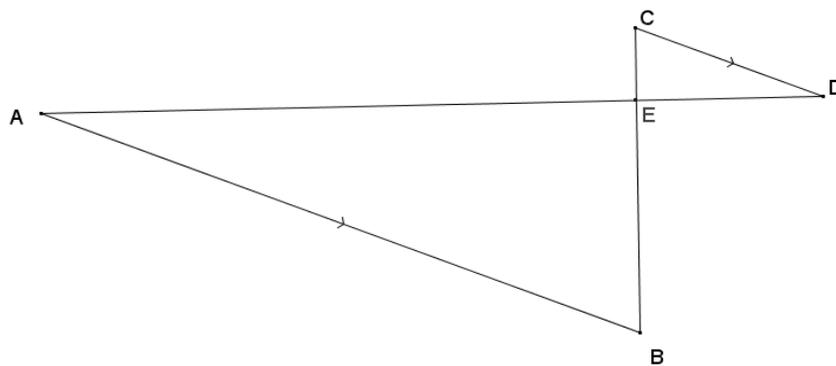
a.



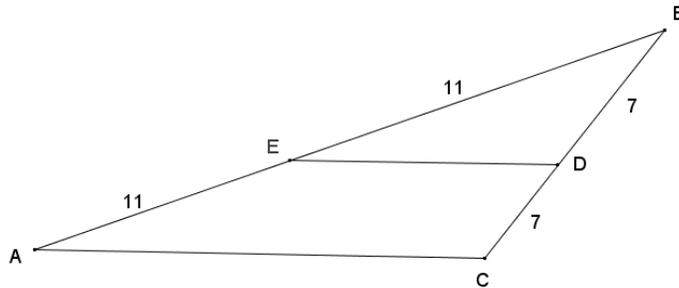
b.



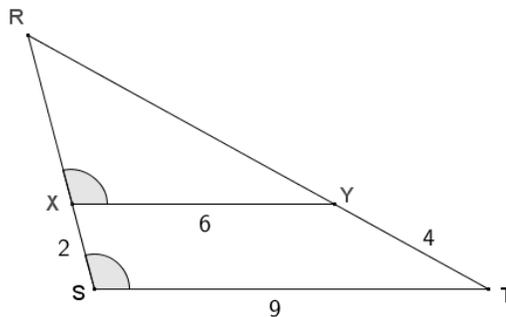
4. Given that \overline{AD} and \overline{BC} intersect at E , and $\overline{AB} \parallel \overline{CD}$, show that $\triangle ABE \sim \triangle DCE$.



5. Given $BE = 11$, $EA = 11$, $BD = 7$, and $DC = 7$, show that $\triangle BED \sim \triangle BAC$.



6. Given the diagram below, X is on \overline{RS} and Y is on \overline{RT} , $XS = 2$, $XY = 6$, $ST = 9$, and $YT = 4$.



- Show that $\triangle RXY \sim \triangle RST$.
 - Find RX and RY .
7. One triangle has a 120° angle, and a second triangle has a 65° angle. Is it possible that the two triangles are similar? Explain why or why not.
8. A right triangle has a leg that is 12 cm long, and another right triangle has a leg that is 6 cm long. Are the two triangles similar or not? If so, explain why. If not, what other information would be needed to show they are similar?
9. Given the diagram below, $JH = 7.5$, $HK = 6$, and $KL = 9$, is there a pair of similar triangles? If so, write a similarity statement and explain why. If not, explain your reasoning.

