



Problem 1 – Side Splitter Theorem

In *SIDESP1.8xv*, you are given $\triangle CAR$. You are also given \overline{DS} which is parallel to side CR .

1. Move point D to 2 different positions and point A to 2 different positions and collect the data in the table below. Calculate the ratios of AD to DC and AS to SR for each position and record the calculation in the table below.

Position	AD	DC	AS	SR	$\frac{AD}{DC}$	$\frac{AS}{SR}$
1						
2						
3						
4						

2. Make some observations about the ratios of the sides in the triangle. What relationships do you notice?

3. Use the table to complete the following conjecture about the relationship between $\frac{AD}{DC}$ and $\frac{AS}{SR}$. If side DS is parallel to side CR , then _____.

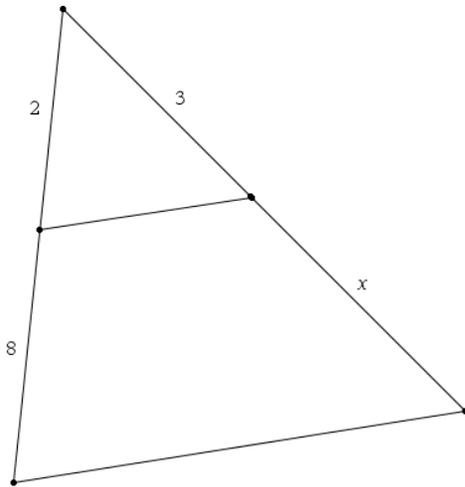
4. In *SIDESP2.8xv*, drag point A . Make some observations about the relationship of the ratios $\frac{AD}{DC}$ and $\frac{AS}{SR}$?

5. In *SIDESP2.8xv*, drag point D . Make some observations about the relationship of the ratios $\frac{AD}{DC}$ and $\frac{AS}{SR}$?

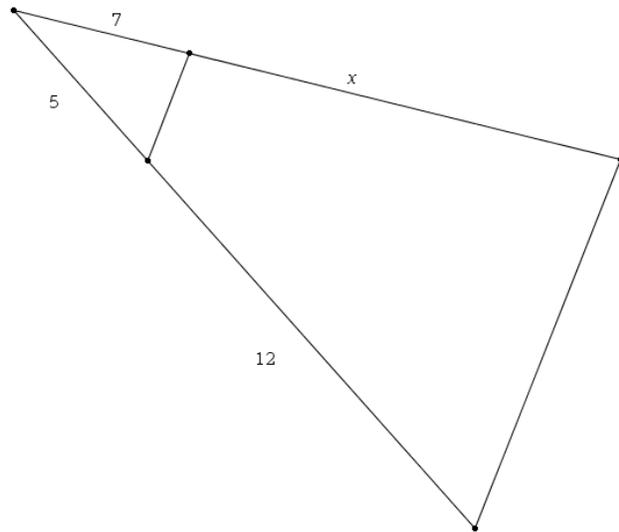
6. Why are the results different when moving point A versus moving point D ?

Problem 2 – Application of the Side-Splitter Theorem

7. Find the value of x .



8. Find the value of x .



Problem 3 – Extension of the Side-Splitter Theorem

For this problem, we will look at a corollary of the side-splitter theorem.

9. In *SIDESP3.8xv*, move point U to 2 different positions and point N to 2 different positions and collect the data in the table on the accompanying worksheet.

Position	RN	NO	EA	AS	$\frac{RN}{NO}$	$\frac{EA}{AS}$
1						
2						
3						
4						

10. What do you notice about the ratios $\frac{RN}{NO}$ and $\frac{EA}{AS}$?

11. Use the table to complete the following conjecture about the relationship between $\frac{RN}{NO}$ and

$\frac{EA}{AS}$. If lines RE , NA , and OS are parallel and cut by two transversals, then

_____.