Side-Splitter Theorem

SideSplitter.tns

Name ______________________

Class ______________________

Problem 1 – Side Splitter Theorem

On page 1.3, 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 ________________.

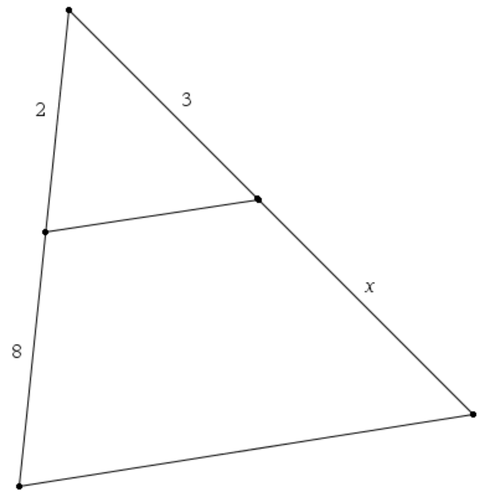
4. On page 1.7, drag point *A*. Make some observations about the relationship of the ratios $\frac{AD}{DC}$ and $\frac{AS}{SR}$?

5. On page 1.7, drag point *D*. Make some observations about the relationship of the ratios $\frac{AD}{DC}$ and $\frac{AS}{SR}$?

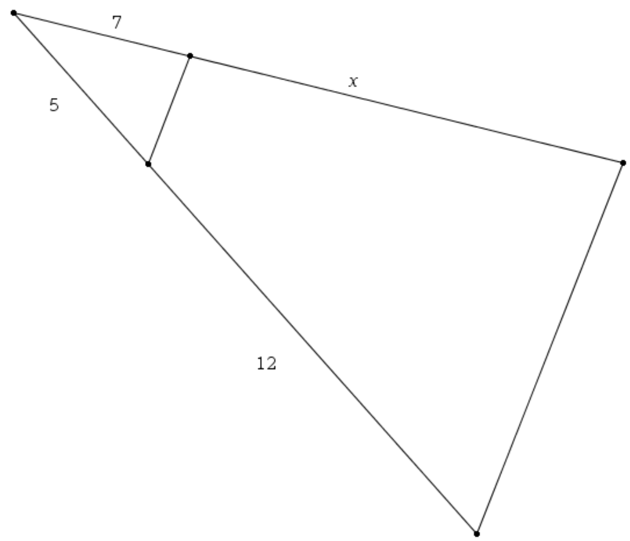
6. Why are the results different when moving point *A* versus moving point *D*?

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. 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

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