

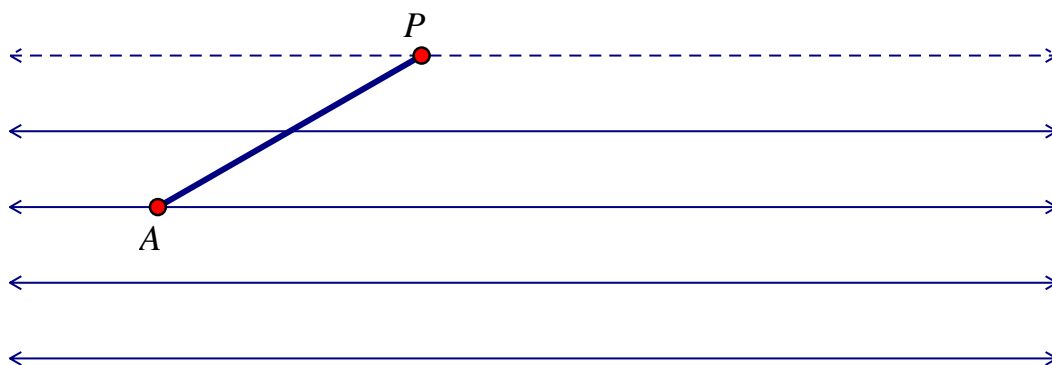
Side-Splitting and Parallel Theorems

Partner Names: _____ **and** _____ **Period** _____

First, do the explore and discuss on pages 258-259, writing your answers in the spaces below: The sub will COLLECT one of these PER PAIR at the end of the period; you'll need to use your book for some of the problems.

(a)	(b)
(c)	(d)

2. In the diagram at right, the horizontal lines are equally spaced.



a. Find the midpoint of \overline{PA} . Describe how to find it *without* measuring or folding.

b. Draw four more segments with an endpoint at P whose midpoints are “automatic”, that is, whose midpoints you could find without having to measure or fold.

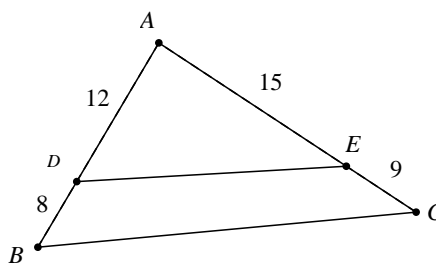
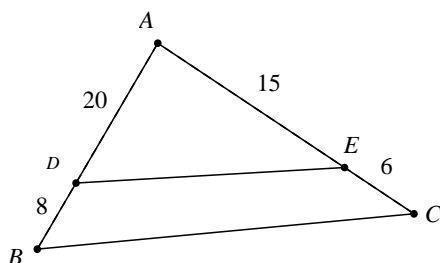
c. Draw four segments with an endpoint at P that are “automatically” divided into thirds.

3a. Suppose that $m = 12$, $n = 4$, and $p = 21$. If $\frac{m}{n} = \frac{p}{q}$, find the value of q .

b. Fill in the table below to determine whether each pair of quantities are equal

Left	Right	Equal?	Left	Right	Equal?
$\frac{m+n}{n} =$	$\frac{p+q}{q} =$		$mp =$	$nq =$	
mn	pq		$\frac{m}{p} =$	$\frac{n}{q} =$	
$\frac{m-n}{n} =$	$\frac{p-q}{q} =$		mq	np	

4. Read the definition in the box on page 261. Then determine whether \overline{DE} splits \overline{AB} and \overline{AC} proportionally in each case. Calculate the ratios that support your answer



5. Recall that every theorem has a hypothesis and a conclusion. For example “IF a pickle is sour, then it is crunchy” has the hypothesis a pickle is sour and the conclusion the pickle is crunchy. Read the two theorems on page 261, and fill in the table below:

	Hypothesis	Conclusion
Parallel Theorem		
Side-Splitting Theorem		

6. Do the checkpoint (#7 on page 262) below.

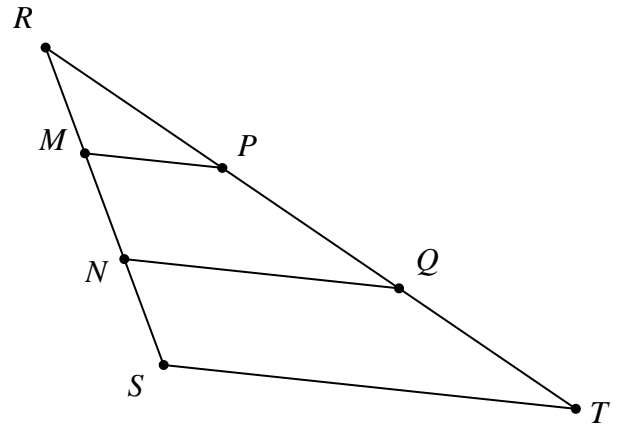
7. In the diagram at right, M, N, Q, P trisect \overline{RS} and \overline{RT} (that is, they divide the segment into _____). Compute each ratio.

a. $\frac{RM}{RS}$

b. $\frac{RT}{RP}$

c. $\frac{RM}{MS}$

d. $\frac{MP}{ST} =$ _____ by which theorem? Check this answer by measuring! (This diagram is drawn to scale, so you can do that)



e. Write down at least two more ratios and their values using the same diagram.

f. How is \overline{MP} related to $\triangle RNQ$?

g. These theorems are like the midline theorem we've talked about all year. Write a sentence or two explaining why.

Now do Activity 2 on pages 262-263 on this paper, copying diagrams and writing neatly. NOTICE that in the proportion on #9, there is a mistake; it should read $\frac{SW}{WT} = \frac{\text{Area}(\triangle SVW)}{\text{Area}(\triangle TVW)}$.