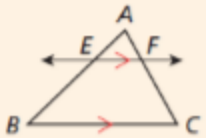
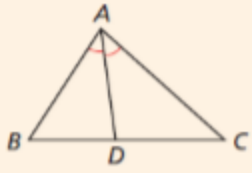
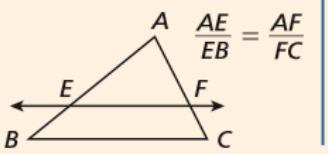
Theorem 7-4-1 Triangle Proportionality Theorem

THEOREM	HYPOTHESIS	CONCLUSION
If a line parallel to a side of a triangle intersects the other two sides, then it divides those sides proportionally.	 $\overline{EF} \parallel \overline{BC}$	$\frac{AE}{EB} = \frac{AF}{FC}$

Theorem 7-4-4 Triangle Angle Bisector Theorem

THEOREM	HYPOTHESIS	CONCLUSION
An angle bisector of a triangle divides the opposite side into two segments whose lengths are proportional to the lengths of the other two sides. (△ ∠ Bisector Thm.)		$\frac{BD}{DC} = \frac{AB}{AC}$

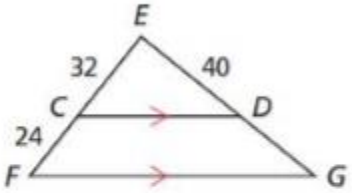
Theorem 7-4-2 Converse of the Triangle Proportionality Theorem

THEOREM	HYPOTHESIS	CONCLUSION
If a line divides two sides of a triangle proportionally, then it is parallel to the third side.	 $\frac{AE}{EB} = \frac{AF}{FC}$	$\overleftrightarrow{EF} \parallel \overline{BC}$

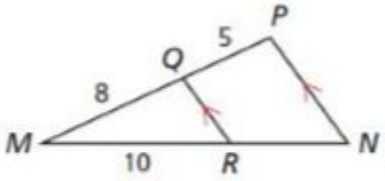
Textbook page 498 #1-8, 13, 14, 26, 27

Find the length of each segment.

1. $\overline{DG}$

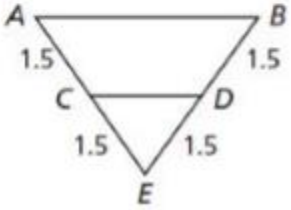


2. $\overline{RN}$

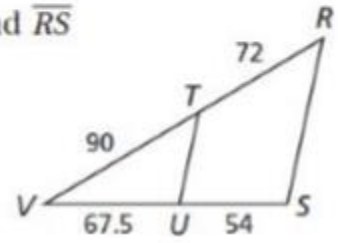


Verify that the given segments are parallel.

3. $\overline{AB}$ and $\overline{CD}$



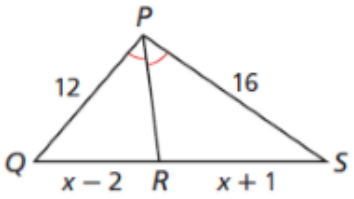
4. $\overline{TU}$ and $\overline{RS}$



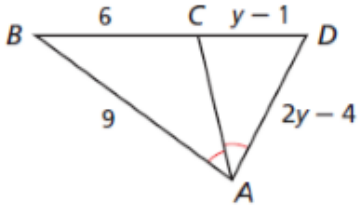
5. **Travel** The map shows the area around Herald Square in Manhattan, New York, and the approximate length of several streets. If the numbered streets are parallel, what is the length of Broadway between 34th St. and 35th St. to the nearest foot?

Find the length of each segment.

6. $\overline{QR}$ and $\overline{RS}$

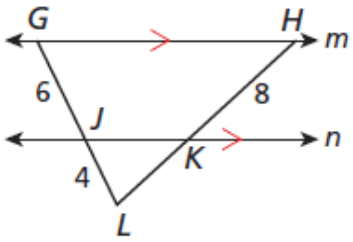


7. $\overline{CD}$ and $\overline{AD}$



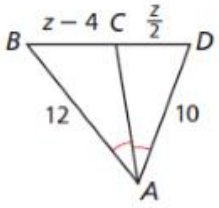
Find the length of each segment.

8. $\overline{KL}$

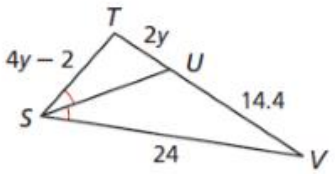


Find the length of each segment.

13. $\overline{BC}$ and $\overline{CD}$

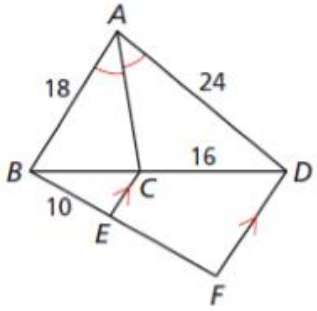


14. $\overline{ST}$ and $\overline{TU}$



Find the length of each segment.

26. $\overline{EF}$



27. $\overline{ST}$