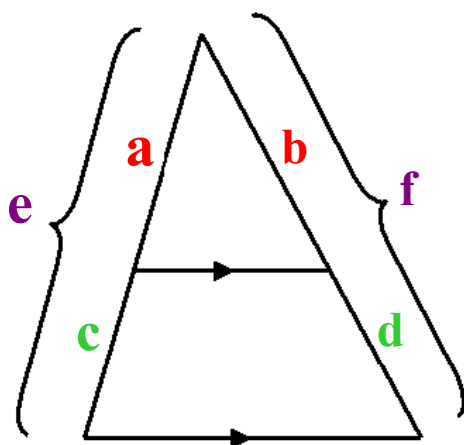


The Δ proportionality Theorem

If a line is \parallel to 1 side of a Δ and intersects the other 2 sides in 2 distinct points, then it separates those sides into segments of proportional length.

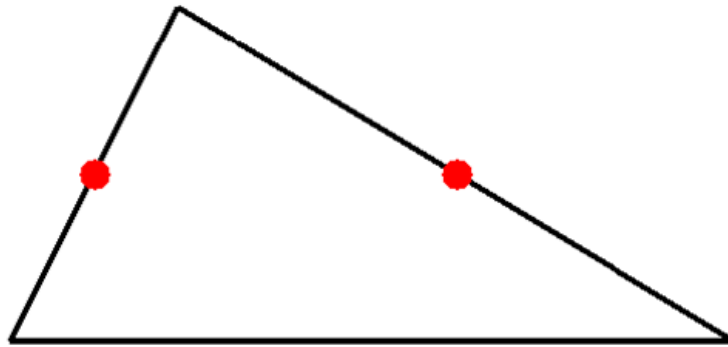


Converse of Triangle Proportionality Theorem

If a line intersects 2 sides of a Δ and separates the sides into corresponding segments of proportional lengths, then the line is \parallel to the 3rd side.

Midsegment of a Triangle

a segment with endpoints that are the midpoints of two sides of the triangle

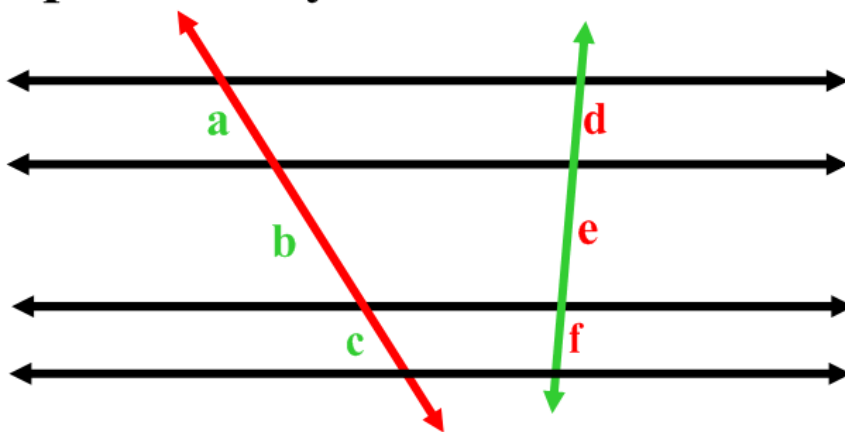


Triangle Midsegment Theorem

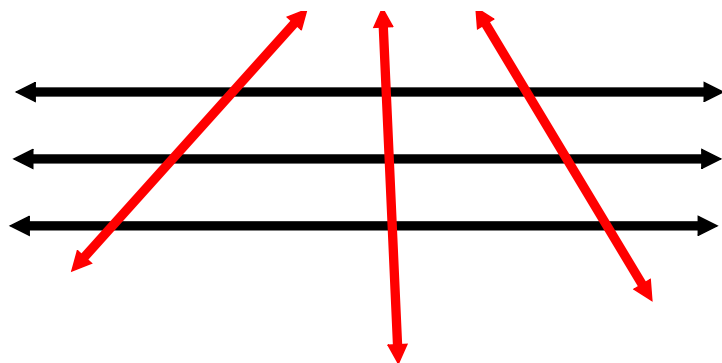
A segment whose endpoints are the midpoints of 2 sides of a \triangle is \parallel to the 3rd side and its length is one-half the length of the 3rd side.

Corollaries to these theorems:

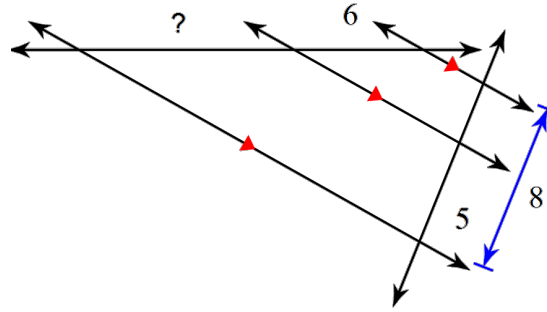
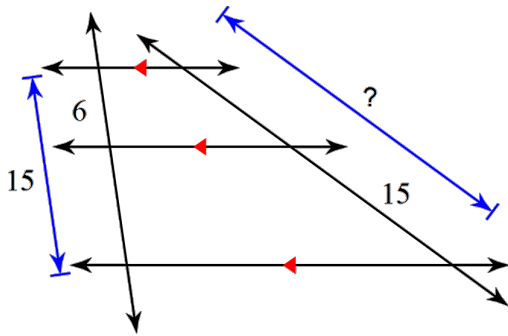
If 3 or more \parallel lines intersect 2 transversals, they cut off the transversals proportionally.



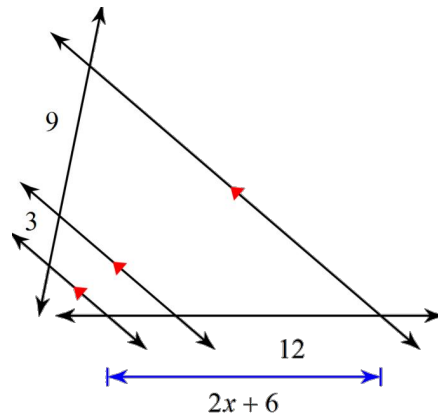
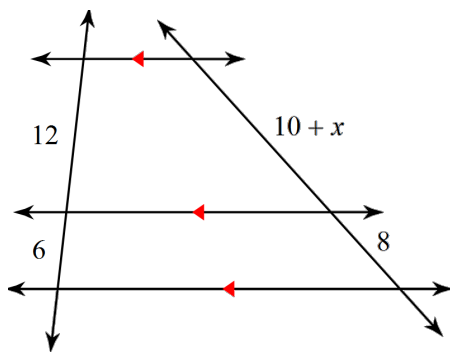
If 3 or more \parallel lines cut off \cong segments on 1 transversal then they cut off \cong segments on every transversal.



Find the missing measures.

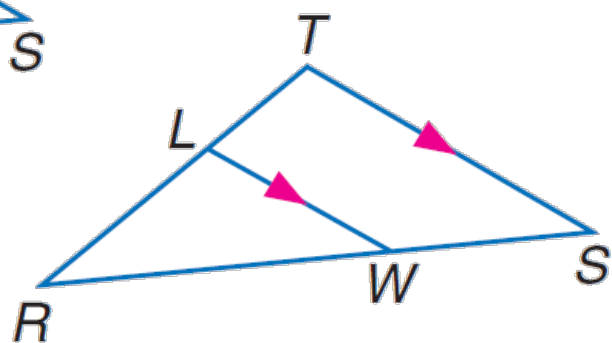
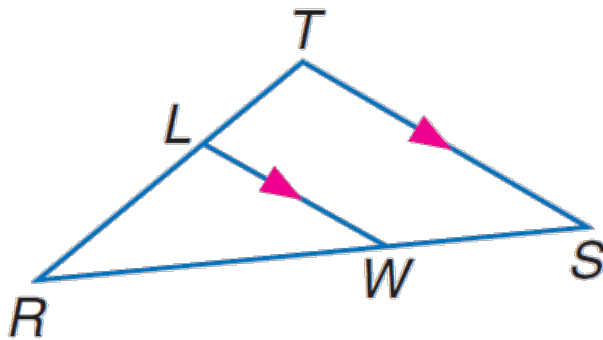


Solve for x .



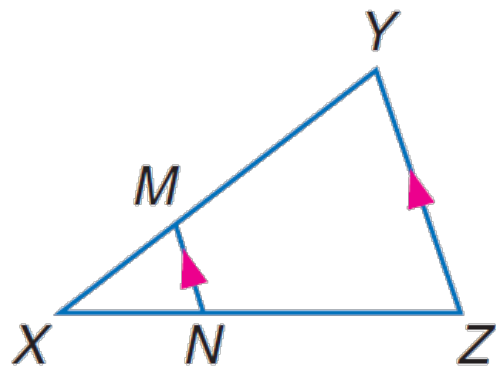
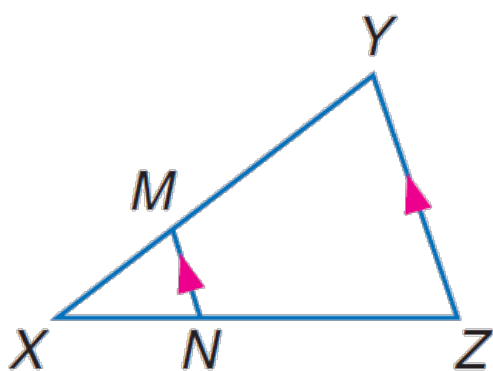
For Exercises 1 and 2, refer to $\triangle RST$.

1. If $RL = 5$, $RT = 9$, and $WS = 6$, find RW .
2. If $TR = 8$, $LR = 3$, and $RW = 6$, find WS .

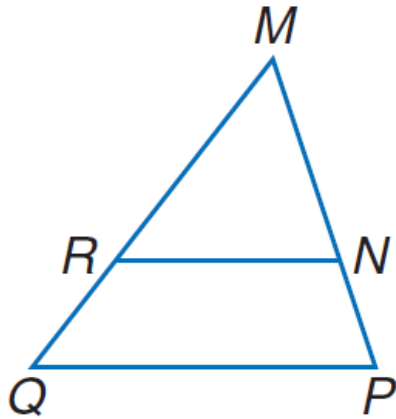


For Exercises 3 and 4, refer to $\triangle XYZ$.

3. If $XM = 4$, $XN = 6$, and $NZ = 9$, find XY .
4. If $XN = t - 2$, $NZ = t + 1$, $XM = 2$, and $XY = 10$, solve for t .



5. In $\triangle MQP$, $MP = 25$, $MN = 9$, $MR = 4.5$, and $MQ = 12.5$. Determine whether $\overline{RN} \parallel \overline{QP}$. Justify your answer.



6. In $\triangle ACE$, $ED = 8$, $DC = 20$, $BC = 25$, and $AB = 12$. Determine whether $\overline{AE} \parallel \overline{BD}$. Justify your answer.

