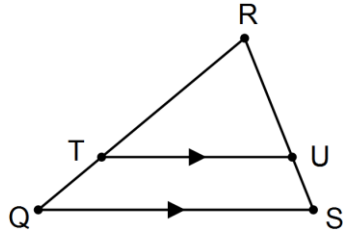


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Section: 10.5

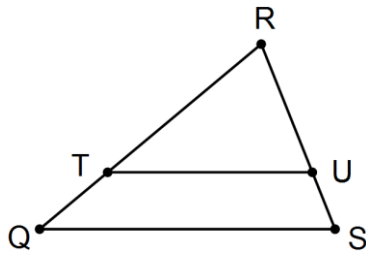
Objective: Triangle Proportionality Theorems, Midsegments of Triangles

Triangle Proportionality Theorem: If a line parallel to one side of a triangle intersects the other two sides, then it divides the sides proportionally.



In $\triangle QRS$, if $\overline{TU} \parallel \overline{QS}$,
 then $\frac{RT}{TQ} = \frac{RU}{US}$.

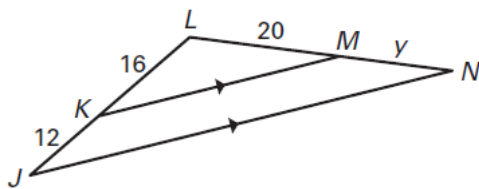
Converse of the Triangle Proportionality Theorem: If a line divides two sides of a triangle proportionally, then it is parallel to the third side.



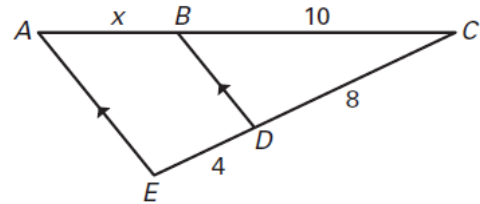
In $\triangle QRS$, if $\frac{RT}{TQ} = \frac{RU}{US}$,
 then $\overline{TU} \parallel \overline{QS}$.

Examples: Find the value of the variable.

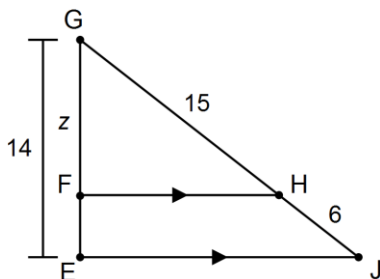
a)



b)

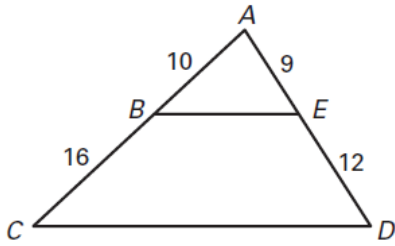


c)

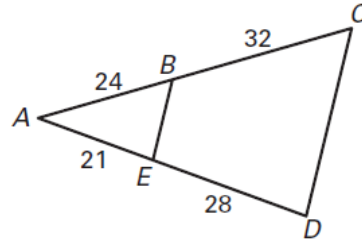


Examples: Given the diagram, determine whether $\overline{BE} \parallel \overline{CD}$. Show work to support your answer.

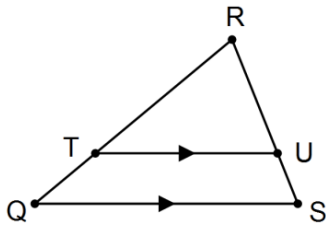
a)



b)



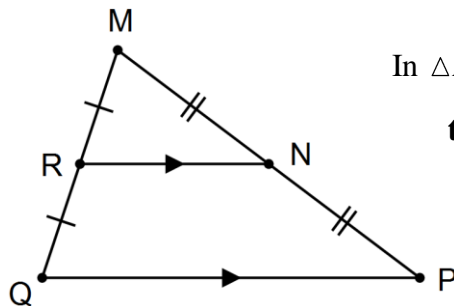
Example: Complete the proportion using the figure.



$$\frac{QT}{QR} \cong \frac{SU}{?}$$

Midsegment of a Triangle: A segment that connects the midpoints of two sides of a triangle.

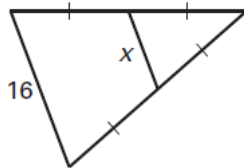
Midsegment Theorem: The segment connecting the midpoints of two sides of a triangle is parallel to the third side and is half as long.



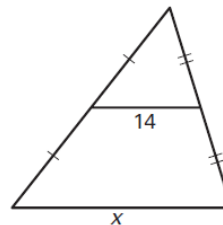
In $\triangle MPQ$, if $MR = RQ$ and $MN = NP$,
 then $\overline{RN} \parallel \overline{QP}$ and $RN = \frac{1}{2}QP$.

Examples: Find the value of the variable.

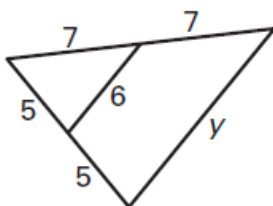
a)



b)



c)



d)

