

Assignment

Write

Write a biconditional statement for the Triangle Proportionality Theorem. Include a sketch to demonstrate your understanding.

Remember

The Angle Bisector/Proportional Side Theorem states: "A bisector of an angle in a triangle divides the opposite side into two segments whose lengths are in the same ratio as the lengths of the sides adjacent to the angle."

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

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

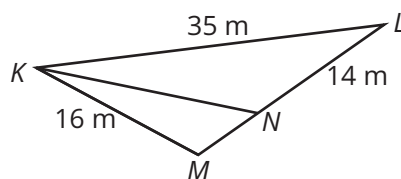
The Proportional Segments Theorem states: "If three parallel lines intersect two transversals, then they divide the transversals proportionally."

The Triangle Midsegment Theorem states: "The midsegment of a triangle is parallel to the third side of the triangle and half the measure of the third side of the triangle."

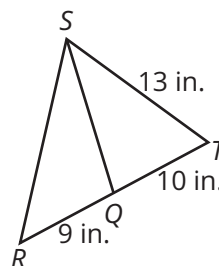
Practice

1. Calculate the indicated length in each figure.

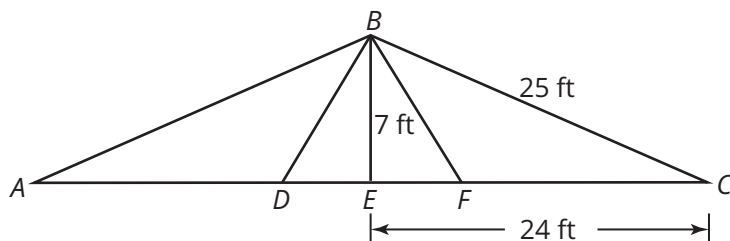
a. \overline{KN} bisects $\angle K$. Calculate MN .



b. \overline{SQ} bisects $\angle S$. Calculate SR .

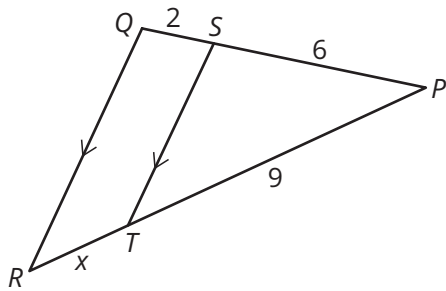


2. The figure shows a truss on a bridge. \overline{BF} bisects $\angle CBE$. Use this information to calculate EF and CF .

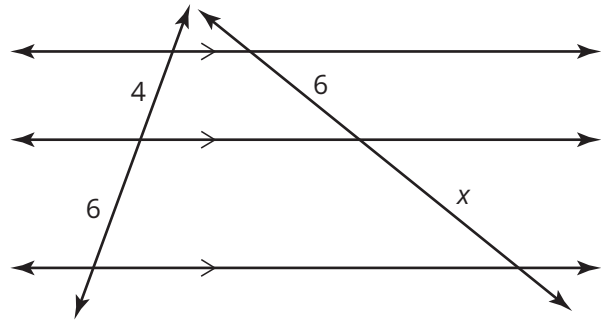


3. Determine the value of x in each figure.

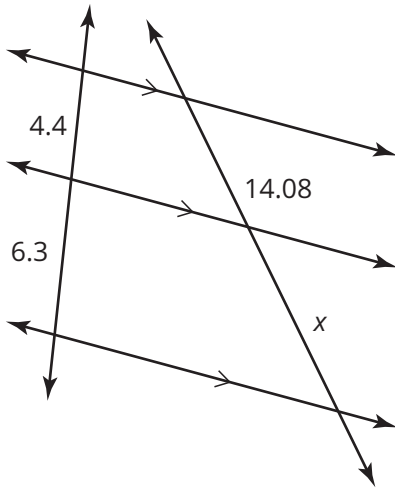
a.



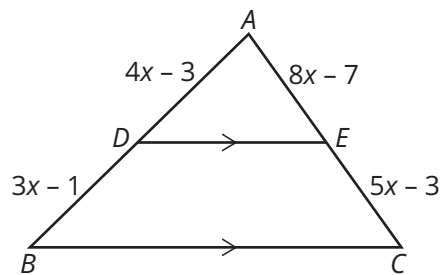
b.



c.

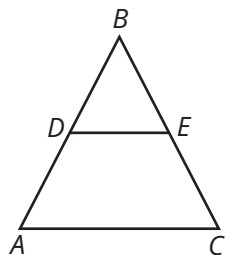


d.



4. Use the diagram and given information to write two statements that can be justified using the Triangle Midsegment Theorem.

a.

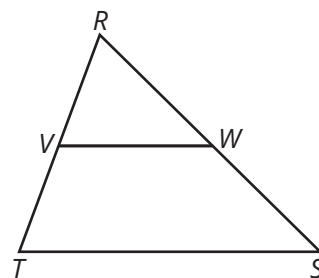


Given: $\triangle ABC$

D is the midpoint of \overline{AB} .

E is the midpoint of \overline{BC} .

b.



Given: $\triangle RST$

V is the midpoint of \overline{RT} .

W is the midpoint of \overline{RS} .