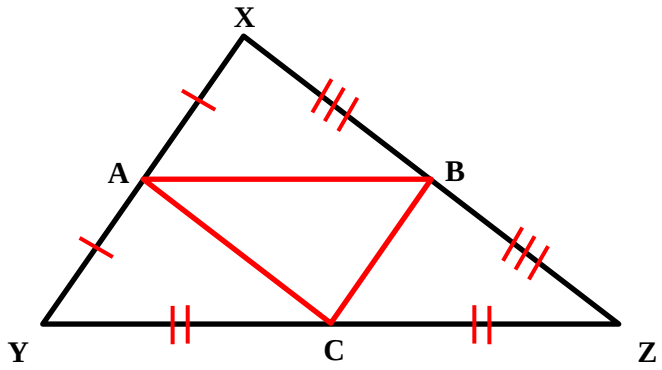
Name: _____ Period: _____ Date: _____

MIDSEGMENTS OF TRIANGLES Guide Notes



MIDSEGMENT OF A TRIANGLE is a segment that joins the midpoints of two sides of the triangle.

Midsegments: $\overline{AC}$ $\overline{BC}$ $\overline{AB}$

Properties:

1. It is always parallel to the third side.

$\overline{AC} \parallel \overline{XZ}$ $\overline{BC} \parallel \overline{XY}$ $\overline{AB} \parallel \overline{YZ}$

2. Its length is half the length of the third side.

$m_{\overline{AC}} = \frac{1}{2} m_{\overline{XZ}}$ $m_{\overline{BC}} = \frac{1}{2} m_{\overline{XY}}$ $m_{\overline{AB}} = \frac{1}{2} m_{\overline{YZ}}$

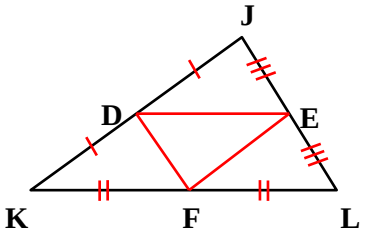
MIDSEGMENT TRIANGLE is a triangle formed by the midsegments of a triangle.

ΔABC

TRIANGLE MIDSEGMENT THEOREM

"In a triangle, the segment joining the midpoints of any two sides will be parallel to the third side and half its length."

Sample Problem 1: Given: $\overline{JK} = 10$ $\overline{DE} = 6.5$ $\overline{EL} = 3.7$



Find:

a. $\overline{KD} = \frac{1}{2}\overline{JK} = \frac{1}{2}(10) = \overline{KD} = 5$

b. $\overline{DJ} = \frac{1}{2}\overline{JK} = \frac{1}{2}(10) = \overline{DJ} = 5$

c. $\overline{DF} = \overline{EL} = \overline{DF} = 3.7$

d. $\overline{JL} = 2 \cdot \overline{EL} = 2 \cdot 3.7 = \overline{JL} = 7.4$

e. $\overline{KF} = \overline{DE} = \overline{KF} = 6.5$

f. $\overline{FL} = \overline{DE} = \overline{FL} = 6.5$

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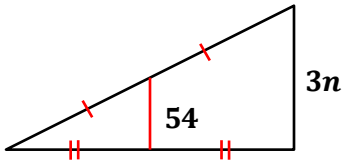
MIDSEGMENTS OF TRIANGLES Guide Notes

Sample Problem 2: Find the value of n.

a.



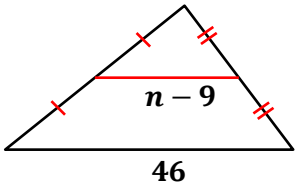
$3n = 2(54)$

$3n = 108$

$\frac{3n}{3} = \frac{108}{3}$

$n = 60$

b.



$46 = 2(n - 9)$

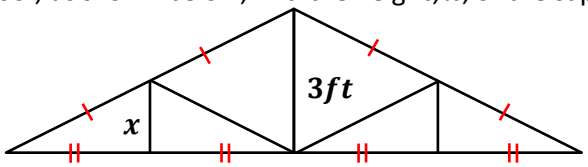
$46 = 2n - 18$

$46 + 18 = 2n$

$64 = 2n$

$n = 32$

Sample Problem 3: In the house's roof, as shown below, find the height, x, of the support.



$2x = 3ft$

$x = \frac{3}{2}ft = 1.5ft$