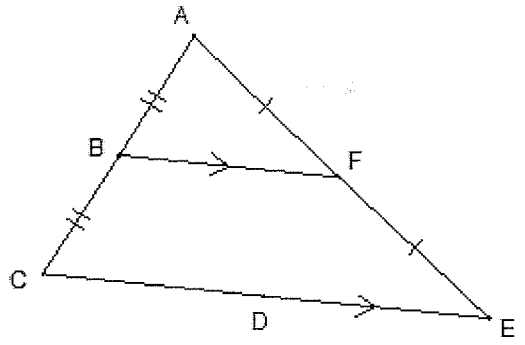
8.4 Midsegments of Triangles

Explain 2 Using the Triangle Midsegment Theorem

Triangle Midsegment Theorem

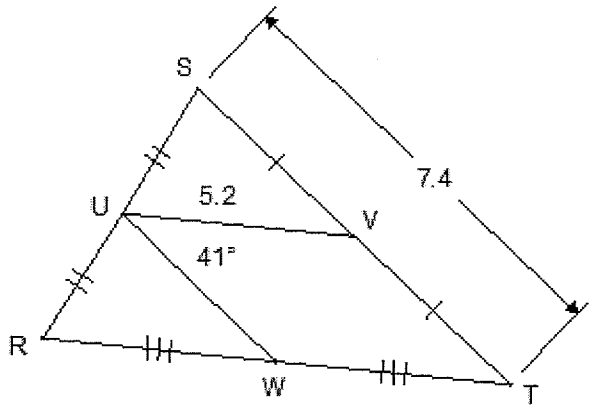
The segment joining the midpoints of two sides of a triangle is parallel to the third side, and its length is half the length of that side.



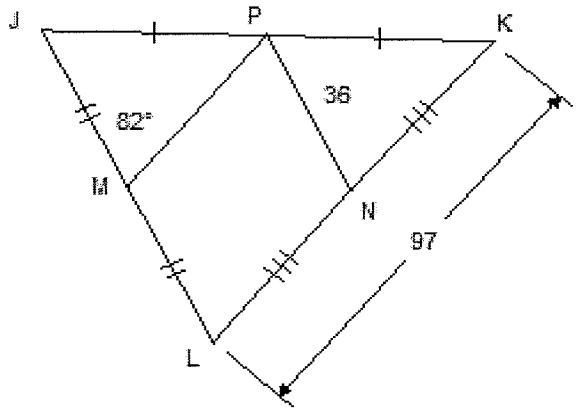
- $\overline{BF} \parallel \overline{CE}$ (use to find $\angle s$)
- $BF = \frac{1}{2}CE$
- $2BF = CE$

Examples: Find various lengths, angle measures, or variable valuables

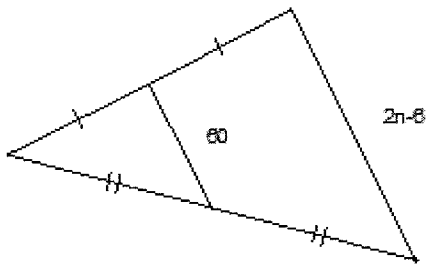
a) Find UW and $m\angle SVU$

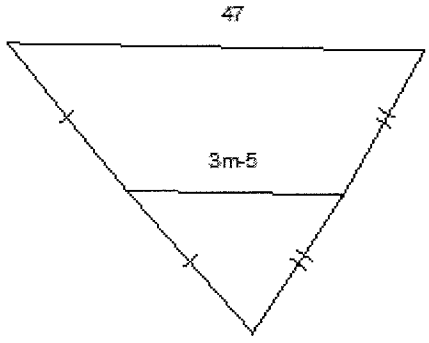


b) Find $JL, PM, and\ m\angle MLK$



c) Find the value of *n* and *m*





1st

8.4 Midsegments of Triangles

Using the Triangle Midsegment Theorem

Triangle Midsegment Theorem

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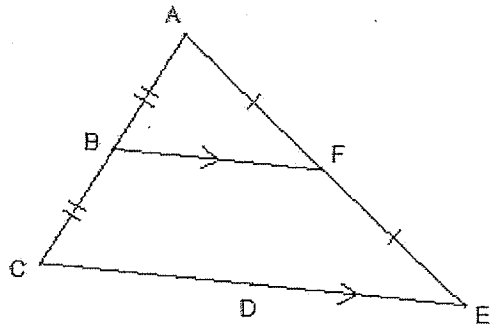

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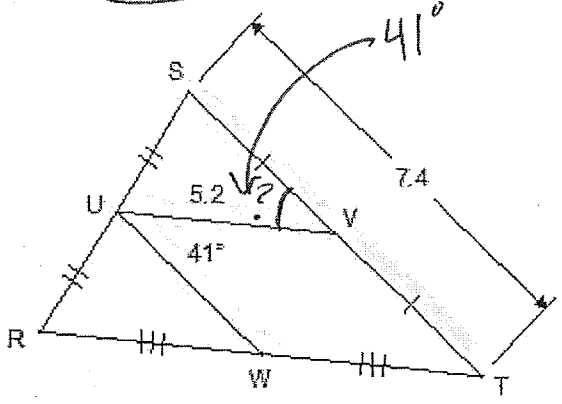
Examples: Find various lengths, angle measures, or variable valuables

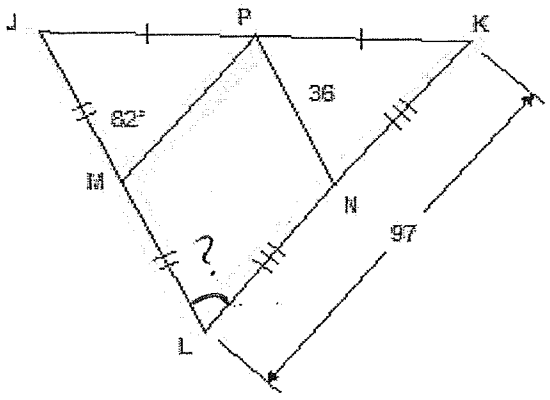
a) Find UW and $m\angle SVU$



$UW = \frac{7.4}{2} = 3.7$

$m\angle SVU = 41°$ (alt. int. $\angle$s)

b) Find JL, PM, and $m\angle MLK$

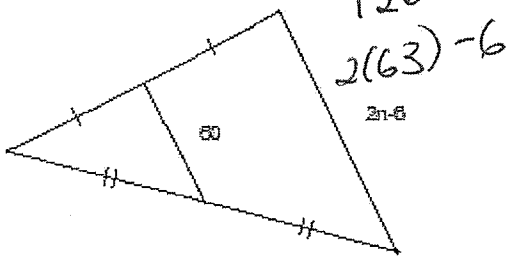


$JL = 2 \cdot 36 = 72$

$PM = \frac{97}{2} = 48.5$

$m\angle MLK = 82°$ (corr. $\angle$s $\cong$)

c) Find the value of n and m



$126 - 6 = 120$

$2(63) - 6$

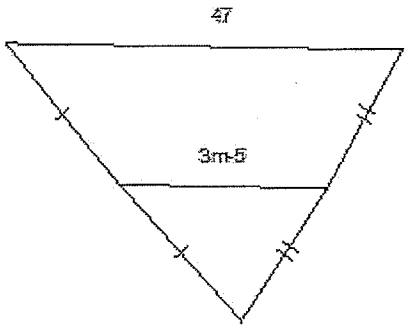
$2 \cdot 60 = 2n - 6$

$120 = 2n - 6$

$+6 \quad +6$

$\frac{126}{2} = \frac{2n}{2}$

$n = 63$



$3m - 5 = \frac{1}{2} \cdot 47$

$3m - 5 = 23.5$

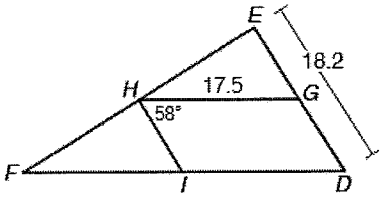
$+5 \quad +5$

$\frac{3m}{3} = \frac{28.5}{3}$

$m = 9.5$

Geometry B: Triangle Midsegments (8.4) Name:_____

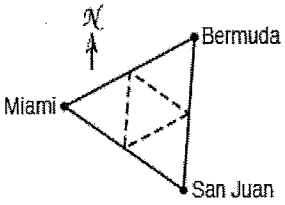
Use the figure for Exercises 1–6. Find each measure.



1. *HI* _____
2. *DF* _____
3. *GE* _____
4. m∠*HIF* _____
5. m∠*HGD* _____
6. m∠*D* _____

The Bermuda Triangle is a region in the Atlantic Ocean off the southeast coast of the United States. The triangle is bounded by Miami, Florida; San Juan, Puerto Rico; and Bermuda. In the figure, the dotted lines are midsegments.

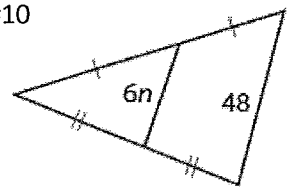
	Dist. (mi)
Miami to San Juan	1038
Miami to Bermuda	1042
Bermuda to San Juan	965



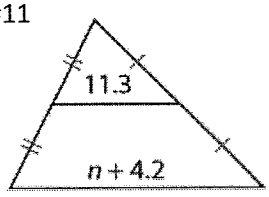
7. Use the distances in the chart to find the perimeter of the Bermuda Triangle. _____
8. Find the perimeter of the midsegment triangle within the Bermuda Triangle. _____
9. How does the perimeter of the midsegment triangle compare to the perimeter of the Bermuda Triangle?

Algebra Find the value of *n* in each triangle.

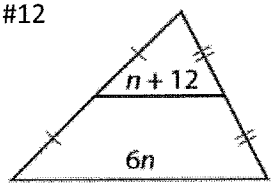
#10



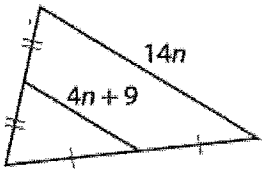
#11



#12

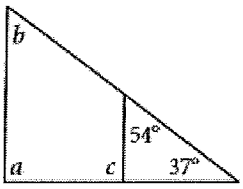


#13

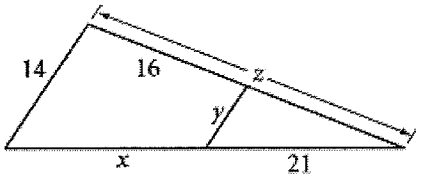


In Exercises 1–3, each figure shows a midsegment.

1. $a =$ _____, $b =$ _____, $c =$ _____



2. $x =$ _____, $y =$ _____, $z =$ _____

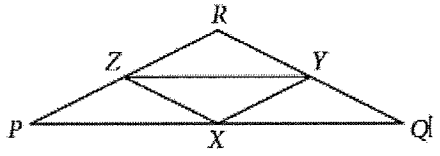


#3 X, Y, and Z are midpoints. Perimeter $\triangle PQR = 132$, $RQ = 55$, and $PZ = 20$.

Perimeter $\triangle XYZ =$ _____

$PQ =$ _____

$ZX =$ _____



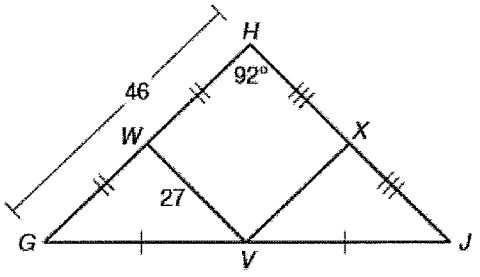
Find each measure.

#4 $VX =$ _____

#5 $HJ =$ _____

#6 $m\angle VXJ =$ _____

#7 $XJ =$ _____



Geometry B: 8.4 Assignment Quiz Name:_____A

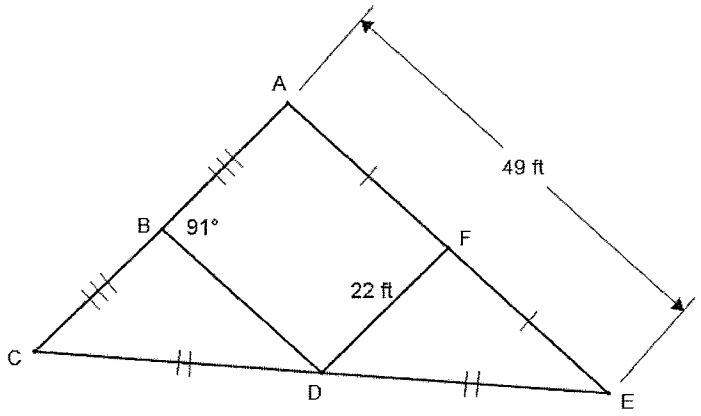
Attach "Triangle Midsegments (8.4)" Worksheet

#1 Using the figure to the right, find the following measures:

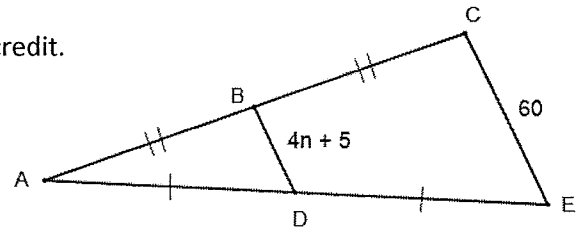
a) $AC =$ _____

b) $BD =$ _____

c) $m\angle BAF =$ _____



#2 Find the value of n. An equation must be shown for full credit.



Geometry B: 8.4 Assignment Quiz Name:_____A

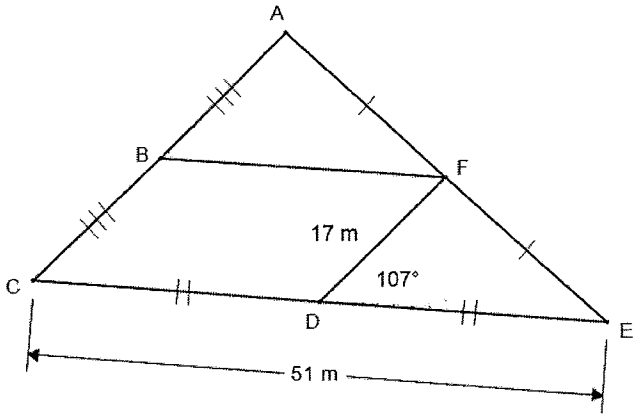
Attach "Triangle Midsegments (8.4)" Worksheet

#1 Using the figure to the right, find the following measures:

a) $AC =$ _____

b) $BF =$ _____

c) $m\angle DFB =$ _____



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