

Day 1 - Segment Relationships in Triangles - Practice

1. Find the following:

$GJ = 38$

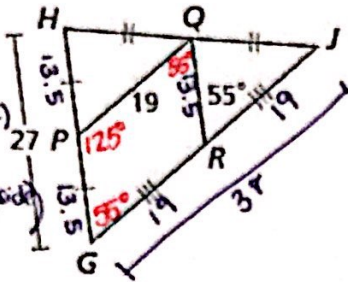
$RQ = 13.5$

$RJ = 19$

$\angle PQR = 55^\circ$  (alt. int)

$\angle HGI = 55^\circ$  (corr.)

$\angle GPQ = 125^\circ$  (same side int)



2.

$NM = 5.1$

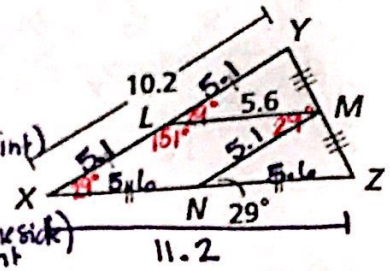
$XZ = 11.2$

$NZ = 5.6$

$\angle LMN = 29^\circ$  (alt. int)

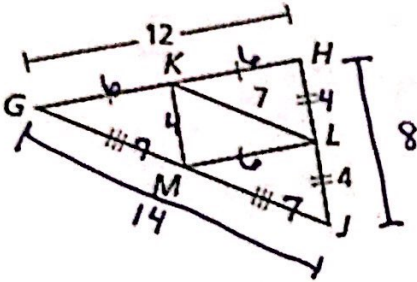
$\angle YXZ = 29^\circ$

$\angle XLM = 151^\circ$  (same side int)



alt. int  $\rightarrow$  corr.

3. Find the perimeter of  $\triangle GHJ$  and  $\triangle KLM$ :



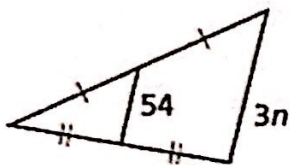
Perimeter of  $\triangle GHJ = 8 + 14 + 12 = 34$

Perimeter of  $\triangle KLM = 4 + 6 + 7 = 17$

*Notice perimeter of midsegment triangle is 1/2 of perimeter of the whole triangle.*

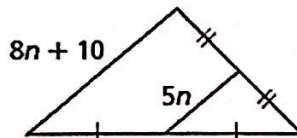
4-6: Find the value of n in each triangle.

4.



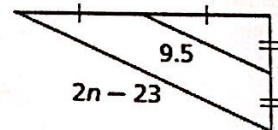
$2(54) = 3n$  OR  $54 = \frac{1}{2}(3n)$   
 $108 = 3n$        $54 = 1.5n$   
 $36 = n$        $36 = n$

5.



$5n = \frac{1}{2}(8n+10)$  OR  $2(5n) = 8n+10$   
 $10n = 8n+10$   
 $2n = 10$   
 $n = 5$

6.

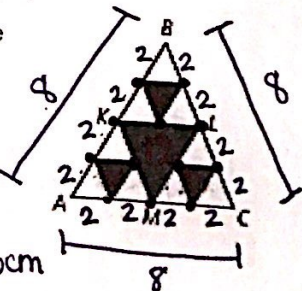


$2(9.5) = 2n - 23$   
 $19 = 2n - 23$   
 $42 = 2n$   
 $21 = n$

7. In the diagram at the right, K, L, and M are the midpoints of the sides of  $\triangle ABC$ . The vertices of the three small purple triangles are the midpoints of the sides of  $\triangle KBL$ ,  $\triangle AKM$ , and  $\triangle MLC$ . The perimeter of  $\triangle ABC$  is 24 cm. What is the perimeter of the shaded region?

$\frac{24 \text{ cm}}{12 \text{ segments}} = 2 \text{ cm per segment}$

OR Perimeter of Midsegment  $\Delta = \frac{1}{2}(24) = 12 \text{ cm}$   
 Perimeter of Small Triangles  $= \frac{1}{2}(12) = 6 \text{ cm}$



Perimeter of Shaded Region  $= 6 + 6 + 6 + 12 = 30 \text{ cm}$