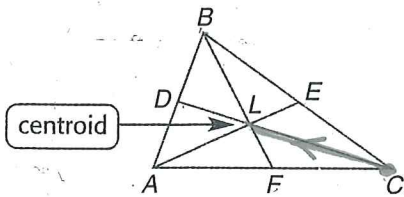


5-1 Bisectors, Medians and Altitudes Notes *continued*

Centroid Theorem

The centroid of a triangle is located ^{two} to thirds the distance from a vertex to the midpoint of the side opposite the vertex of the median.



If L is the centroid of $\triangle ABC$, then

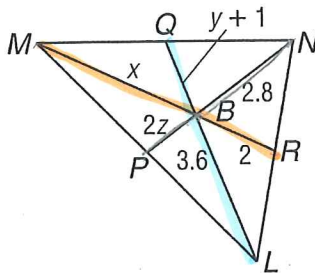
$$AL = \frac{2}{3}(AE)$$

$$BL = \frac{2}{3}(BF)$$

$$CL = \frac{2}{3}(CD)$$

Now, let's do # 5, 6, and 7

In $\triangle LMN$, P , Q , and R , are the midpoints of \overline{LM} , \overline{MN} , and \overline{LN} , respectively.



5. Find x .

$$MB = x$$

$$BR = 2$$

$$MR = x + 2$$

$$MB = \frac{2}{3}(MR)$$

$$x = \frac{2}{3}(x + 2)$$

$$1x = \frac{2}{3}x + \frac{4}{3}$$

$$-\frac{2}{3}x - \frac{2}{3}x$$

$$\frac{1}{3}x = \frac{4}{3} \cdot 3$$

$$\boxed{x = 4}$$

6. Find y .

$$LB = 3.6$$

$$BQ = y + 1$$

$$LQ = 3.6 + y + 1$$

$$LQ = y + 4.6$$

$$LB = \frac{2}{3}(LQ)$$

$$3.6 = \frac{2}{3}(y + 4.6)$$

$$3.6 = \frac{2}{3}y + \frac{4.6}{1.5}$$

$$\left(\frac{3}{2}\right)\frac{8}{15} = \frac{2}{3}y \left(\frac{3}{2}\right)$$

$$\frac{4}{5} = y$$

$$\boxed{y = 0.8}$$

7. Find z .

$$NB = 2.8$$

$$BP = 2z$$

$$NP = 2.8 + 2z$$

$$NB = \frac{2}{3}(NP)$$

$$2.8 = \frac{2}{3}(2.8 + 2z)$$

$$2.8 = \frac{2.8}{1.5} + \frac{4}{3}z$$

$$-\frac{2.8}{1.5} - \frac{2.8}{1.5}$$

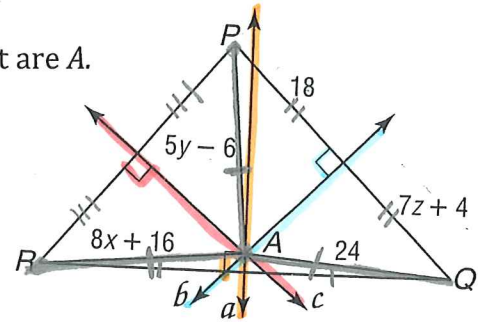
$$\left(\frac{3}{4}\right)\frac{14}{15} = \frac{4}{3}z \left(\frac{3}{4}\right)$$

$$\frac{1}{10} = z$$

$$\boxed{z = 0.1}$$

Now, let's look at # 8, 9, and 10

Lines $a, b,$ and c are perpendicular bisectors for $\triangle PQR$ and meet at A .



8. Find x .

$$\begin{array}{r} 8x + 16 = 24 \\ -16 \quad -16 \\ \hline 8x = 8 \end{array}$$

$$8x = 8$$

$$x = 1$$

9. Find y .

$$\begin{array}{r} 5y - 6 = 24 \\ +6 \quad +6 \\ \hline 5y = 30 \end{array}$$

$$\frac{5y}{5} = \frac{30}{5}$$

$$y = 6$$

10. Find z .

$$\begin{array}{r} 7z + 4 = 18 \\ -4 \quad -4 \\ \hline 7z = 14 \end{array}$$

$$\frac{7z}{7} = \frac{14}{7}$$

$$z = 2$$

Use these notes and the notes from yesterday to complete the 5-1 Skills Practice and Practice handout you received yesterday. All problems are to be completed for homework and are due on Wednesday, December 2nd.