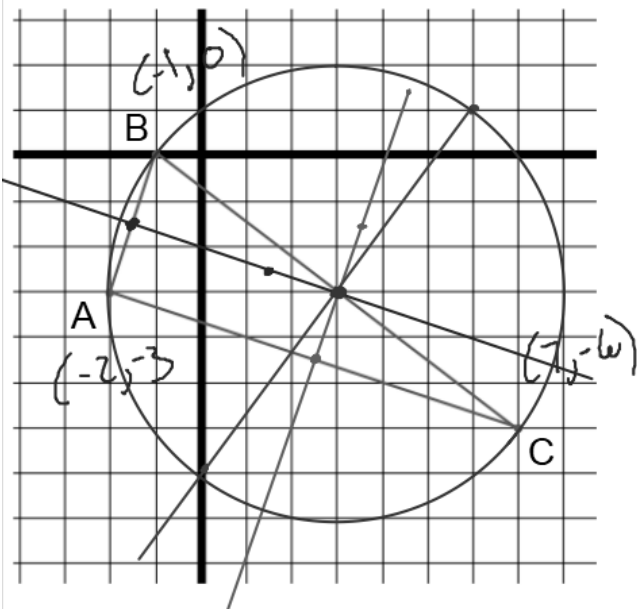


Draw the three perpendicular bisectors for the triangle below and place a point at the circumcenter. Give the points for the circumcenter.



Perpendicular Bisector $\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2} \right)$
 Midpoint Slope

$$\text{midpt } AB \left(\frac{-2+(-1)}{2}, \frac{-3+0}{2} \right)$$

$$\left(-\frac{3}{2}, -\frac{3}{2} \right)$$

$$\text{Slope } AB = \frac{3}{1} \quad \text{Slope } \perp = -\frac{1}{3}$$

$$\text{midpt } AC \left(\frac{-2+7}{2}, \frac{-3+(-6)}{2} \right)$$

$$\left(\frac{5}{2}, -\frac{9}{2} \right)$$

$$(2.5, -4.5)$$

$$\text{Slope } AC = \frac{-3}{9} = -\frac{1}{3}$$

$$\text{Slope } \perp = 3$$

$$\text{midpt } BC \left(\frac{-1+7}{2}, \frac{0+(-6)}{2} \right)$$

$$\left(\frac{6}{2}, -\frac{6}{2} \right)$$

$$(3, -3)$$

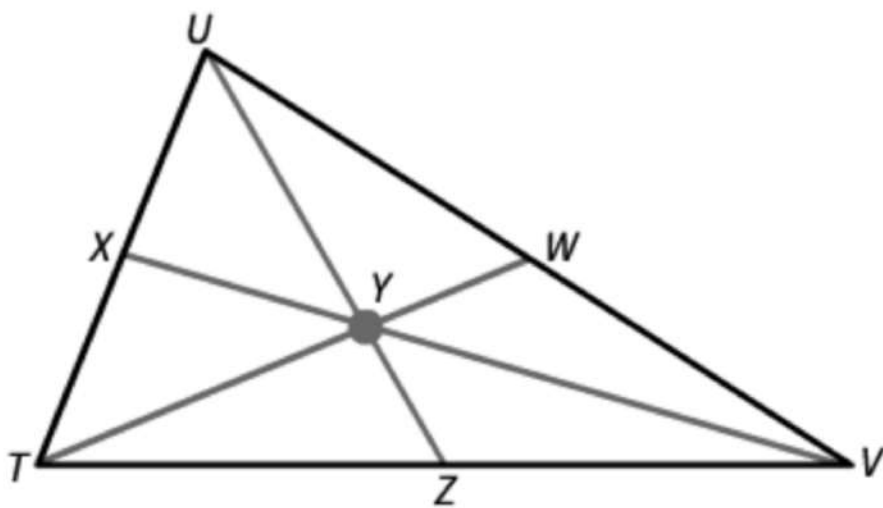
$$\text{Slope } BC = \frac{-6}{8} = -\frac{3}{4}$$

$$\text{Slope } \perp = \frac{4}{3}$$

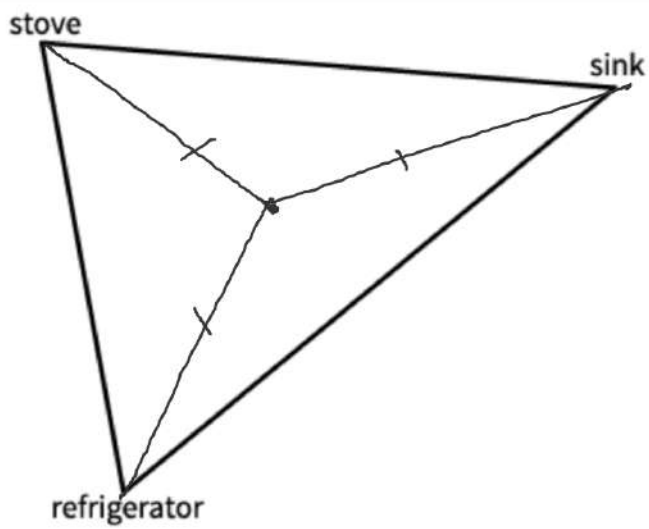
Circumcenter

$$(3, -3)$$

In $\triangle TUV$, Y is the centroid. If $TW = 30$, what is TY ?



In the diagram, which center describes the point equidistant to the stove, the refrigerator, and the sink?



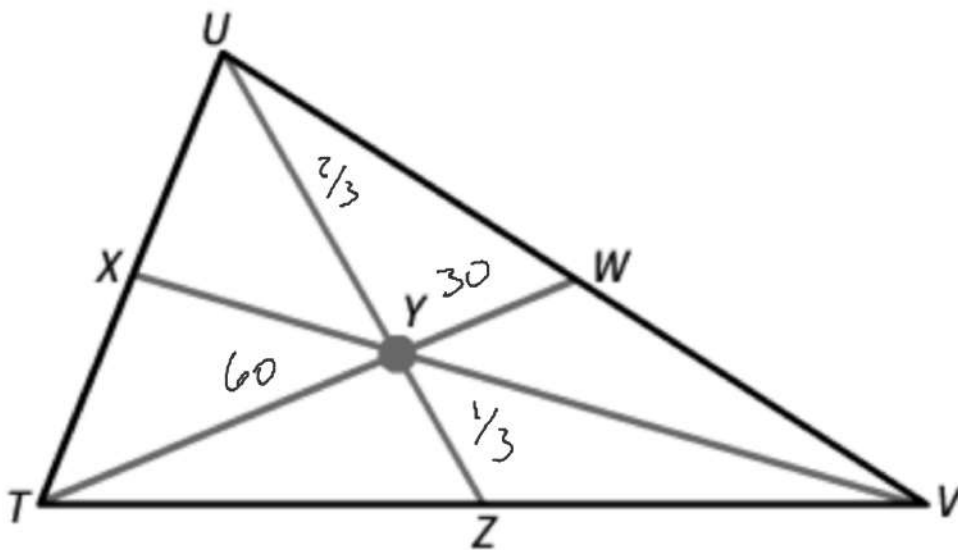
Circumcenter

Incenter

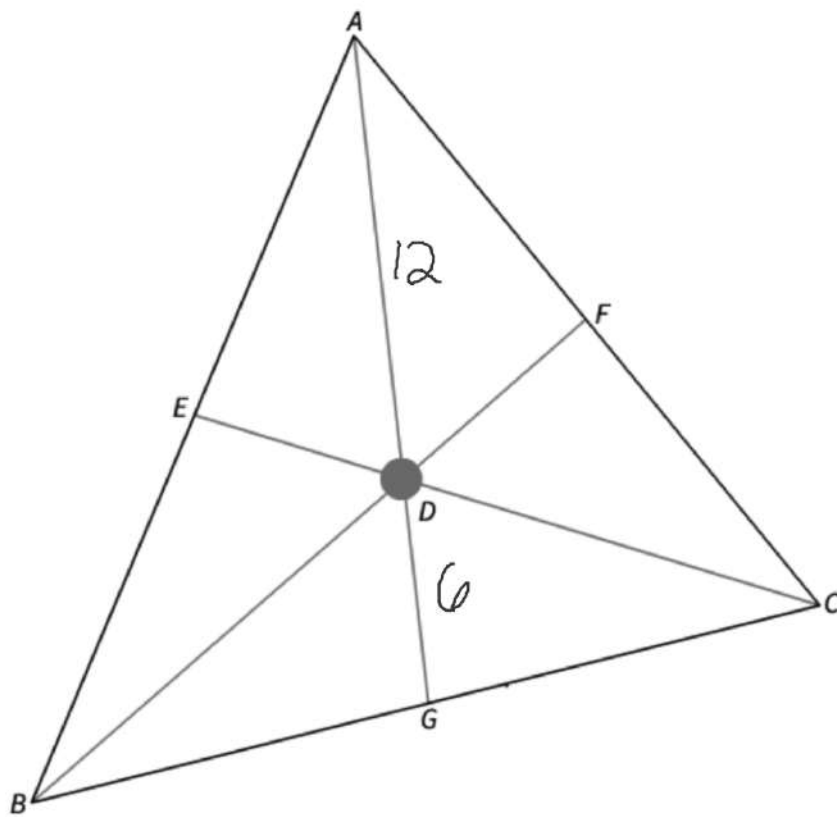
Centroid

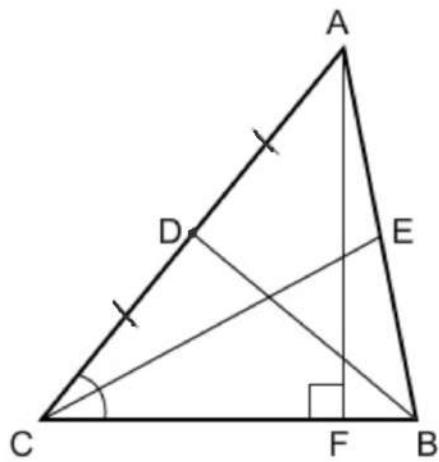
Orthocenter

In $\triangle TUV$, Y is the centroid. If $YW = 30$, what is TY ?



D is the centroid of $\triangle ABC$ and $DG = 6$ ft. Find AD .





Name a median for $\triangle ABC$.

BD

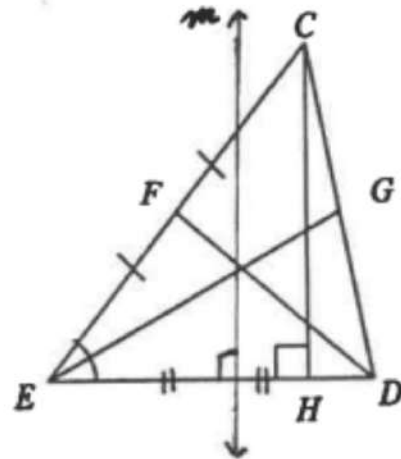
In triangle CDE identify the following:

A Median \overline{DF}

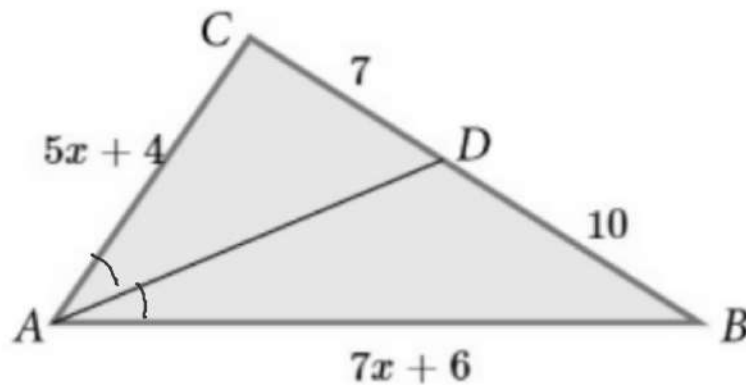
An Altitude \overline{CH}

A Perpendicular Bisector m

An Angle Bisector \overline{EG}



\overline{AD} bisects $\angle CAB$. Use the info in the figure to find x and then \overline{AB} and \overline{AC} .



$$\begin{aligned}x &= 2 \\AC &= 5x + 4 \\&= 5(2) + 4 \\&= 14\end{aligned}$$

$$\begin{aligned}AB &= 7x + 6 \\&= 7(2) + 6 \\&= 14 + 6 \\&= 20\end{aligned}$$

$$\frac{CD}{DB} = \frac{AC}{AB}$$

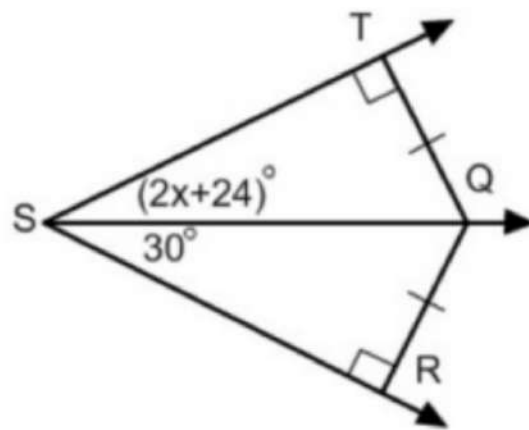
$$\frac{7}{10} = \frac{5x+4}{7x+6}$$

$$7(7x+6) = 10(5x+4)$$

$$49x + 42 = 50x + 40$$

$$42 = x + 40$$

$$2 = x$$



$$2x + 24 = 30$$

$$2x = 6$$

$$x = 3$$

$\overline{TQ} \cong \overline{QR}$. Find the value of x .