Geometry 5.2
Construct median of a triangle
Identify and use triangle medians
Identify and use triangle altitudes

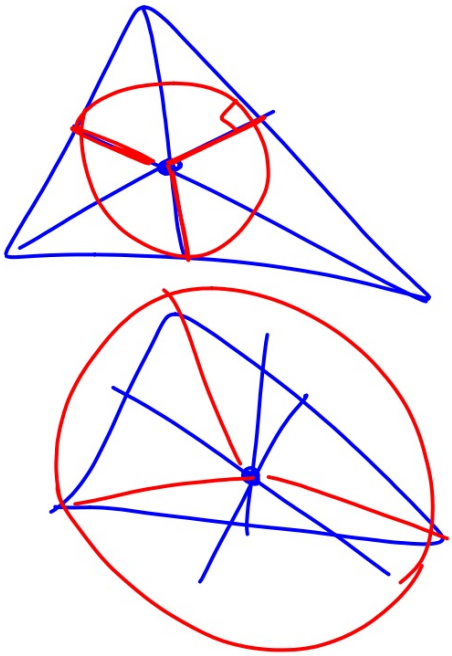
perpendicular bisector (sides)
angle bisector
median
altitude
centroid
orthocenter

activity: little book
constructions
cardboard centroids

5.1
Point of concurrency (POC)

POC:
Angle bisectors (incenter)
Center of inscribed circle
Equidistant from sides (perp)

- Perp bisectors (circumcenter)
  Center of circumscribed circle
  Equidistant from vertices



orthocenter

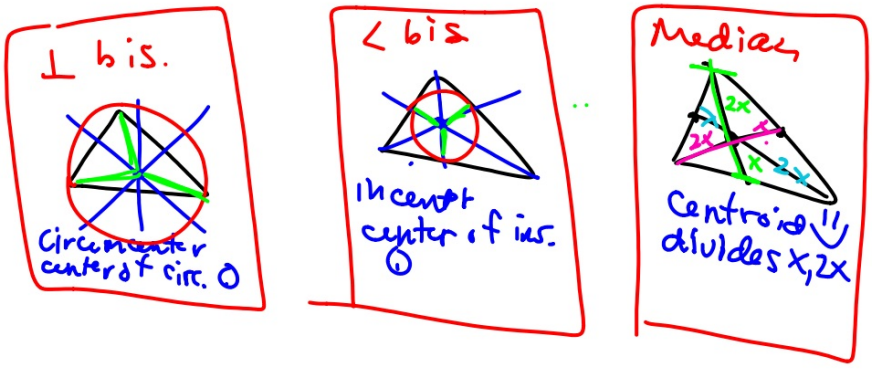
3 (Hamb)

Cut
Hot dog
Squish

Follow directions:

Title: Triangle Book (your name)

(inside pages)
·perpendicular bisector
·angle bisector
·median
·altitude



Construction 1 Median of a Triangle

Step 1

Place the thumbtack on vertex D and then on vertex E to draw intersecting arcs above and below $\overline{DE}$. Label the points of intersection R and S.

Step 2

Use a straightedge to find the point where $\overline{RS}$ intersects $\overline{DE}$. Label the point M. This is the midpoint of $\overline{DE}$.

Step 3

Draw a line through F and M. $\overline{FM}$ is a median of $\triangle DEF$.

median - connects mp to vertex

(Pac) = centroid

Triangle GKF

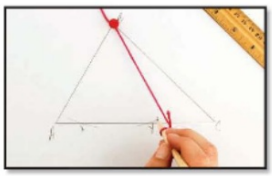
Find the midpoint of a side
Connect by folding: midpoint and opposite angle.

centroid

Altitude XYZ

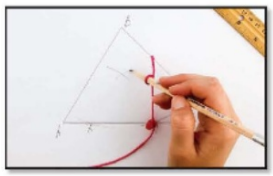
Construction 2 Altitude of a Triangle

Step 1



Place the thumbtack on vertex B and draw two arcs intersecting $\overline{AC}$. Label the points where the arcs intersect the sides as X and Y.

Step 2



Adjust the length of the string so that it is greater than $\frac{1}{2}XY$. Place the tack on X and draw an arc above $\overline{AC}$. Use the same length of string to draw an arc from Y. Label the points of intersection of the arcs H.

Step 3

Use a straightedge to draw $\overleftrightarrow{BH}$. Label the point where $\overleftrightarrow{BH}$ intersects $\overline{AC}$ as D. $\overline{BD}$ is an altitude of $\triangle ABC$ and is perpendicular to $\overline{AC}$.

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Fold a side (through a vertex) so that segments line up.

Poc.

orthocenter

Triangle centroid activity

Use a ruler and protractor (if necessary) to draw a triangle on a piece of cardboard.

The triangle should be acute. Make it as large as possible.

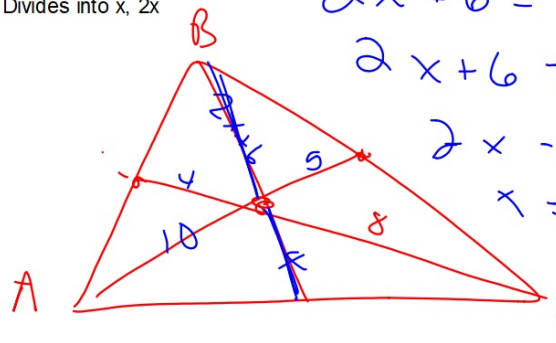
(Each side of the triangle should be between 4 and 6 inches in length.)

Cut out the triangle

Measure and mark the midpoint of each side. Be as precise as possible.(mm)

Draw the median from each angle.
The point of concurrency is the centroid.

POC
Medians (Centroid)
Balancing point
Divides into x, 2x



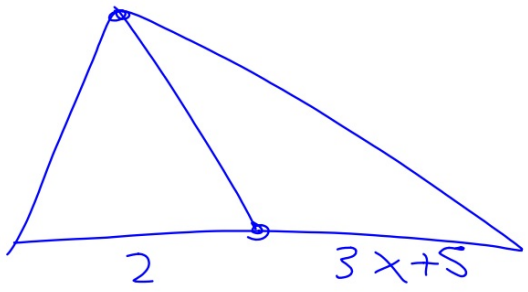
$2x + 6 = 2 \cdot 4$

$2x + 6 = 8$

$2x = 2$

$x = 1$

$x = -1$



$$2 = 3x + 5$$
$$-5 \qquad -5$$
$$-3 = 3x$$

p. 340

5-25 odd ~~11, 15~~

44-53 all