CENTROID ACTIVITY

Name:_____

Per:_____

Date:_____

GETTING READY

A) Open the Geometry Application (G).

B) Select **File** and then **New**.

NOTE: If there is something already open in Geometry, make sure you save it if you want to keep it. If not, select **OK** when prompted with the **Clear All** menu.

CONSTRUCTION

1) Create triangle ABC by **either**:

a) tapping the toolbar button (O)

OR

b) using the Draw menu (**Draw, Special Shape, Triangle)**

2) Create a boundary box for the triangle by pressing on the screen and dragging. When you let go, a triangle will appear inside the box.

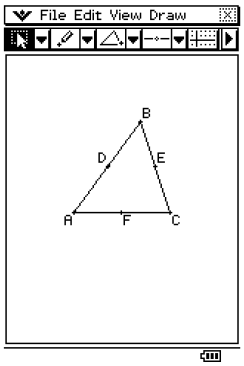
3) Create midpoints for each segment of the triangle (steps below).

a) Select the segment.

b) Select the command for midpoint (either on the toolbar (u) or in the **Draw, Construct** menu).

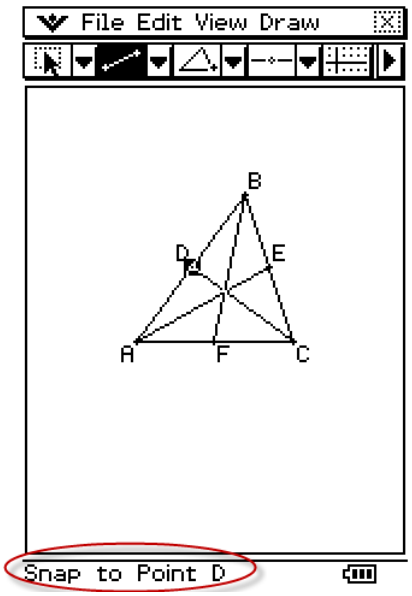
c) Tap on blank space to deselect all before creating the midpoints for subsequent segments.

Result:



4) Create the medians of the triangle.

IMPORTANT: When creating the median segments, make sure you **snap to** (check the status bar; see below).



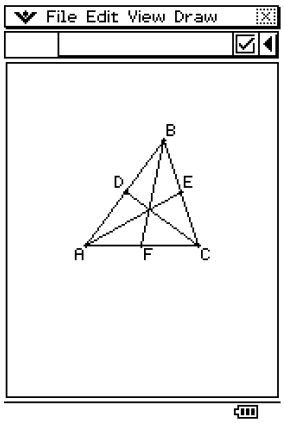
a) Select the command for line segment (either on the toolbar ($\mathcal{Y}$) or in the **Draw** menu).

b) Tap on a vertex.

c) Press on an opposite midpoint and hold until you see the **snap to** message in the status bar and release.

d) Tap on blank space to deselect all before creating the subsequent segments.

Result:

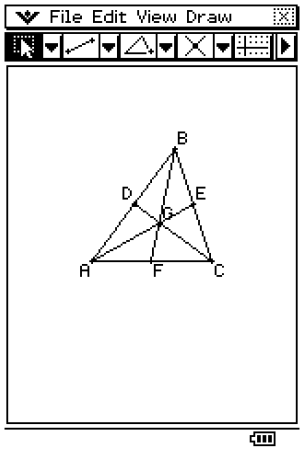


5) Construct the intersection point of all three medians.

a) Select two of the three medians.

b) Select intersection command from the toolbar (7) or select **Draw, Construct, Intersection**. This intersection point is called the *centroid* of a triangle.

Result:



6) Measure segments GF and GB and paste them to the draw space.

a) Select points G and F.

b) Select the ▸ at the right of the toolbar.

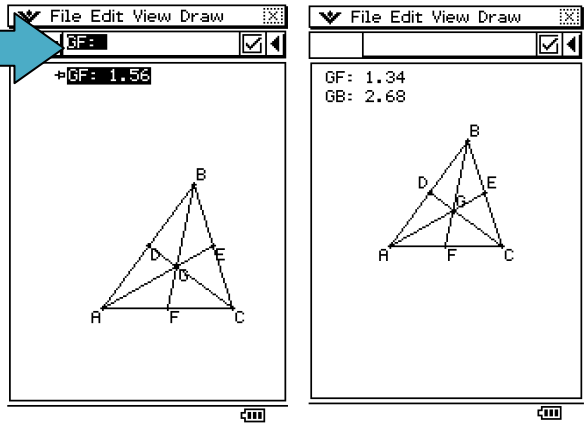
c) Tap the (m) button at the left of the toolbar to paste the measurement.

d) With the (u) button showing, edit the name to say **GF** instead of **Length**.

e) Repeat steps a-d for points G and B.

Edit Name: Result:

Edit name in the measurement box using your k.

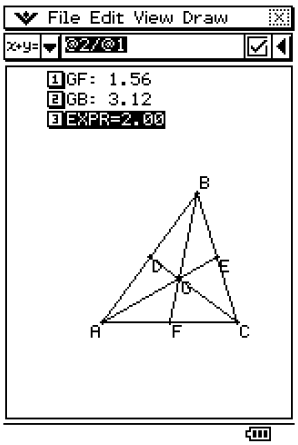


7) Create an expression that calculates GB/GF.

a) Choose **Draw, Expression**.

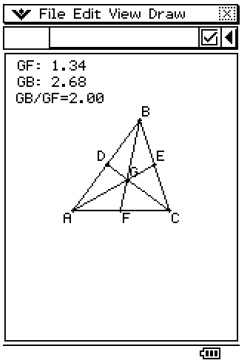
b) Tap the 2 next to GB, the division symbol, and the 1 next to GF. Press EXE.

Result:



8) From the dropdown menu on the left side of the toolbar, select the (u) toolbar button and edit the name of the ratio to read GB/GF instead of EXPR (see 6d above for an example of how to edit names).

Result:



INVESTIGATION

1) Does the intersection point of the two medians you selected also intersect the third median?

2) When you move a side or vertex of the triangle, do the medians still intersect at G?

3) What happens to the ratio GF/GB when you move a side or vertex of the triangle?

4) Make a conjecture about the value of the ratio GD/GC, and about what would happen to the ratio GD/GC if you move a side or vertex of the triangle.

5) What did you learn about the centroid and medians of a triangle?