ED 4161 (Margo) Follow up geometry lesson of Nov 18, 2009.

Geogebra investigation of areas of regular pentagons and hexagons of the same perimeter.

1. Draw a regular pentagon ABCDE using the 5th icon in the menu.
2. Evaluate its area using 8th icon in the menu.
3. Evaluate perimeter typing "per =perimeter[poly1]" in the input line.
4. Now when you drag point A or B, the regular pentagon changes and its area and perimeter change accordingly. The values of the area and perimeter of the pentagon are shown under "poly1=16.33" and "per=15.4".
5. Draw a regular hexagon FGHIJK.
6. Evaluate its area
7. Evaluate perimeter typing "per6 =perimeter[poly2]" in the input line.
8. Drag point F or G to make the perimeter of the hexagon equal to the one of pentagon, that is "per6=15.4".
9. Now the area of the hexagon is "poly2=17.11" which is greater than the area of the pentagon "poly1=16.33".
10. Here we have an example of a regular pentagon and a regular hexagon of the same perimeter 15.4. We observe that the area of the hexagon is greater that the area of the pentagon: 16.33<17.11.
11. Play with this configuration to collect more evidence of this fact.
12. **PROOF IT! Generalize for the case of regular n-gon and m-gon with n<m.**