

**Problem 1.**

- How many vertices, edges, and faces are possessed by the following Platonic Solids?

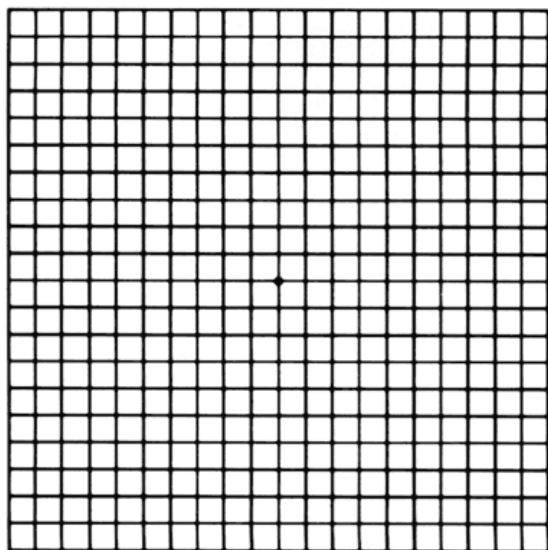
	vertices	edges	faces
Dodecahedron			
Icosahedron			

(You may come up and examine the two models at the front of class).

- Note any connection between the two rows of your table, and explain the significance.

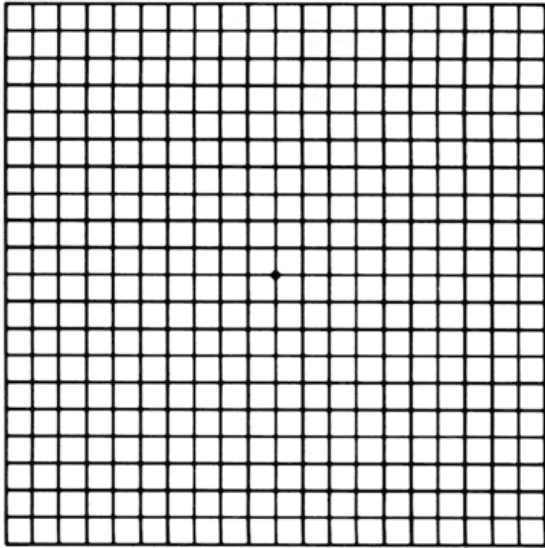
- Name the other Platonic solids.

**Problem 7.** Use the grid below to demonstrate the construction of a logarithmic spiral. Use squares of side lengths given by Fibonacci numbers to construct it: 1x1, 1x1, 2x2, 3x3, 5x5, etc.














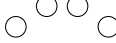
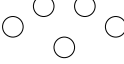


**Problem 8.** Draw the best approximation possible to a golden rectangle using the grid below. You should use only whole grid cells (no partial cells).

1. In what ratio are the side lengths of a true golden rectangle?
2. In what ratio are the side lengths of your approximate rectangle?
3. Carve out from within your approximating rectangle the largest square you can. What can you conclude about the rectangle left over from the operation (including justification – use the space to the right of the figure to answer this question).



**Problem 10.** Consider the following three slices of a 3-D object intersecting with a 2-D world. In each case give a plausible object that could have generated those slices.

	Slice 1	Slice 2	Slice 3	Slice 4	Slice 5
Object 1					
Object 2					
Object 3					

Object 1:

Object 2:

Object 3: