GIS data models and representation II: worksheet

1.	Describe in your own words why storing only the arrays of vertices, edges and faces in a planar map may not be sufficient.
2.	Estimate the size of a winged-edge structure function of v , e and f (the number of vertices, edges and faces, respectively). Assume 3D points (x,y,z) which are floats, and pointers are 8 bytes.
3.	Same as problem 2 but for a half-edge data structure.
	Assume we have a mesh of 1 million points, 2 million edges and 2 million faces. Estimate how much space it is to store it as a topological structure in memory.
	a. winged-edge
	b. half-edge
5.	Assume we have a mesh stored with a winged-edge structure.
	a. Given a pointer to a face, write code that traverses and prints all edges on this face.

	b. Given a pointer to a vertex, write code that traverses and prints all edges incident to this vertex.
6.	Assume we have a mesh stored with a half-edge structure.
	a. Find the two faces that border a half-edge e
	b. Let f be a pointer to a face. Write code that iterates through all edges on this face.
	c. Let v be a pointer to a vertex. Write code that iterates through all edges incident to this vertex.
	d. Find the vertices of a half-edge e