Polyhedra

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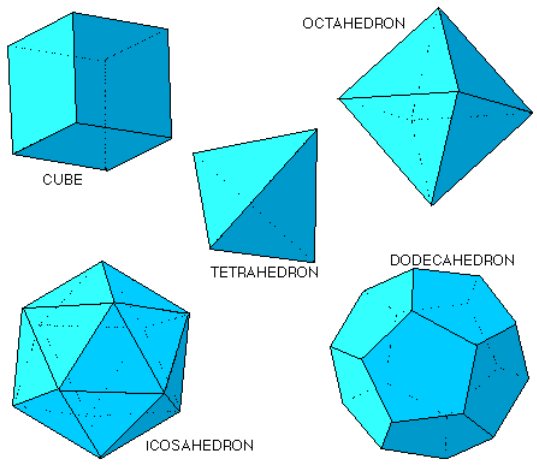
A polyhedron is a geometric 3-dimensional shape made up of several faces, straight edges, and vertices.

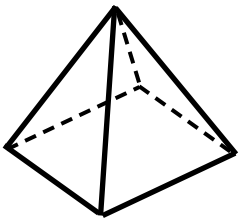
- A vertex is a point which is at the corner of a polyhedron.
- An edge is a line segment that connects two vertices.
- A face is a polygon that is bounded by several edges of the polyhedron.

Below are some examples of polyhedra.



1. What is the smallest number of vertices and edges you need to make a face?

2. Answer the questions below about the polyhedron:



(a) How many vertices are there?

(b) How many edges are there?

(c) How many faces are there?

3. Answer the following questions about polyhedra:

   (a) Can a polyhedron have 3 vertices? Why or why not?

   (b) What is the smallest number of vertices a polyhedron can have?

   (c) What is the smallest number of edges a polyhedron can have. Why is it that number and not another?

   (d) What is the smallest number of faces a polyhedron can have?

#	Polyhedron	Vertices	Edges	Faces
1	Cube			
2	Triangular Prism			
3	5-Prism			
4	Pyramid			
5	Tetrahedron			
6	Octahedron			
7	"Tower"			
8	Cube with a Cut Corner			
9	(Your Own)			

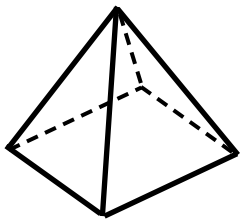
Use this space to sketch the above shapes

Pyramids

A pyramid is a type of polyhedra that has the following properties:

- The base is a polygon
- All the vertices of the base are connected with a special vertex called an apex.

Circle the Apex of the pyramid below:



1. If a pyramid has 10 vertices, how many edges does it have? How many faces does it have?

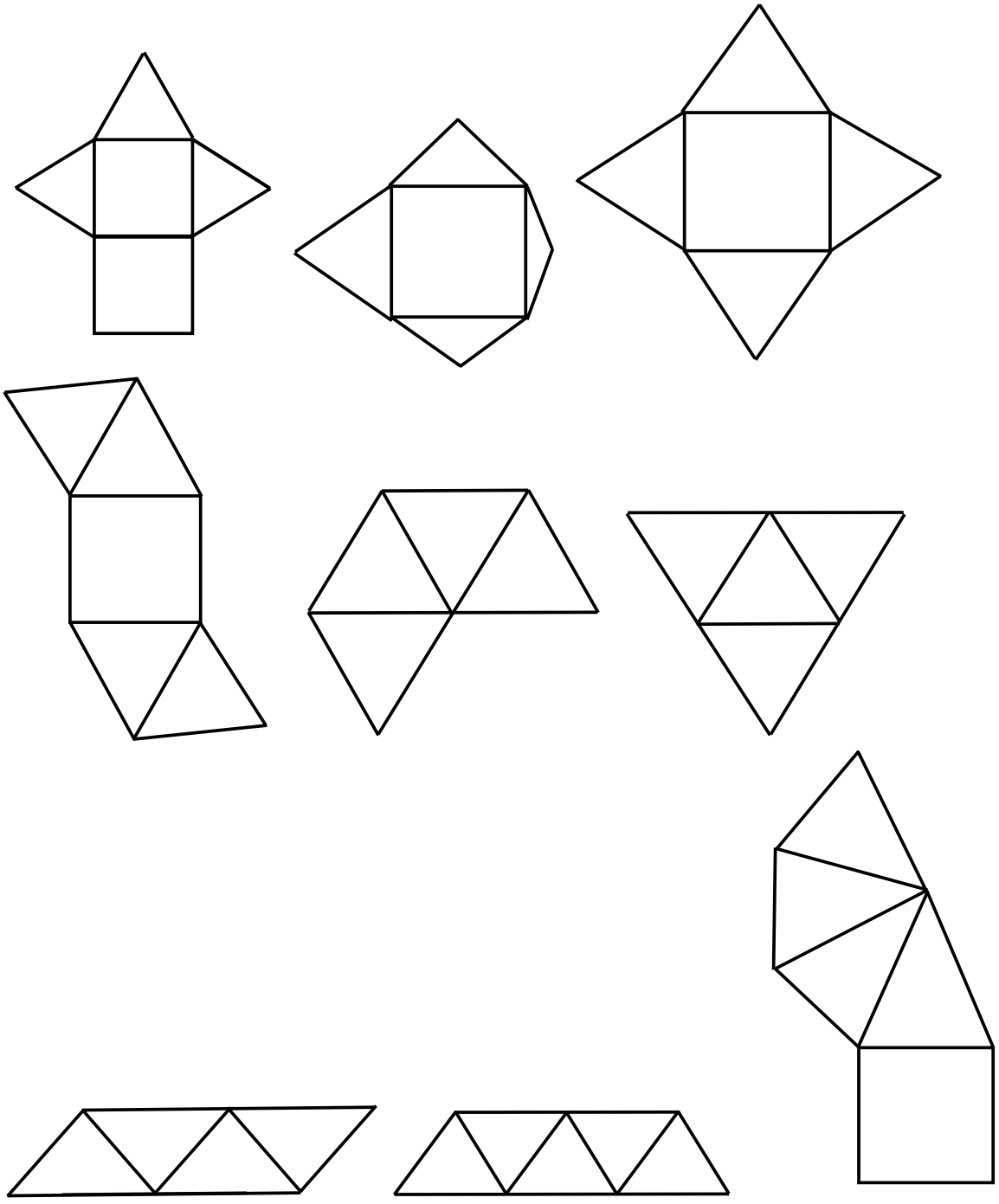
2. If a pyramid has 20 edges, how many vertices and faces does it have?

3. A pyrmiad has F faces. How many edges does it have?

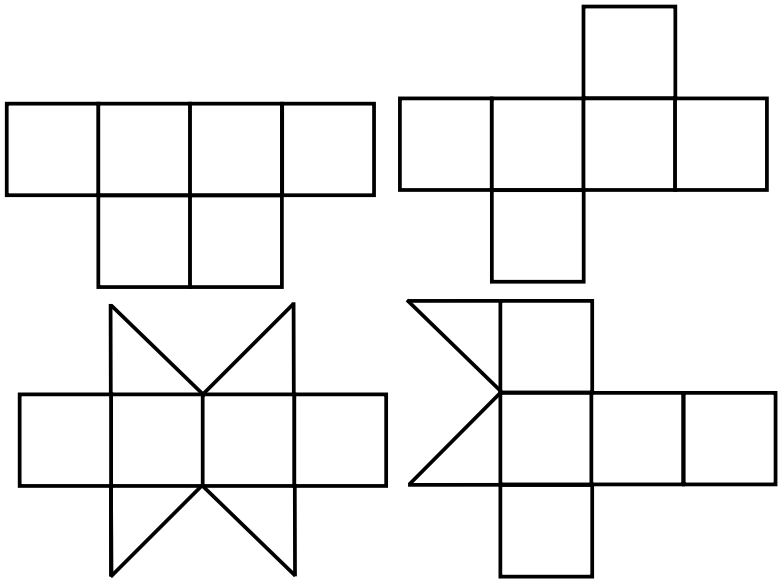
4. Is it possible for a pyramid to have 2015 vertices?

5. Is it possible for a pyramid to have 2015 edges?

1. Identify which of the following nets can be folded into a pyramid. Circle the correct ones:



2. Identify which of the following nets can be folded into a cube. Circle the correct ones:



3. Identify which of the following nets can be folded into a rectangular box. Circle the correct ones: