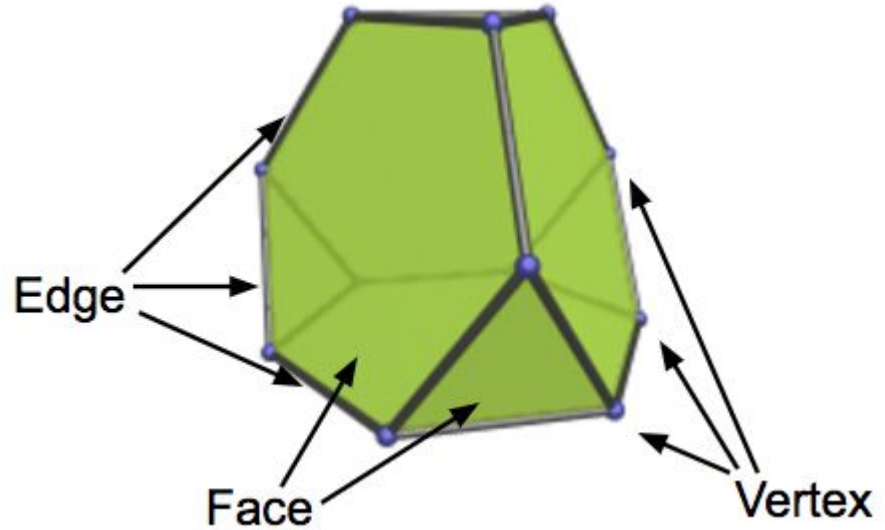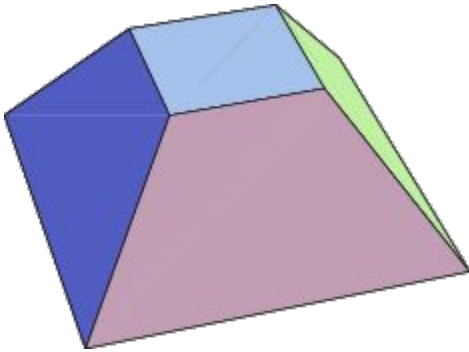# Classifying Solids

Polyhedrons (Polyhedra)
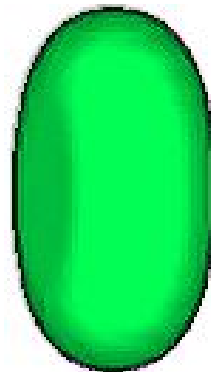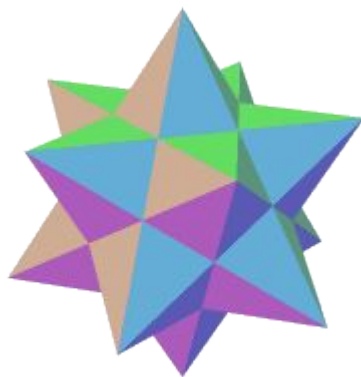
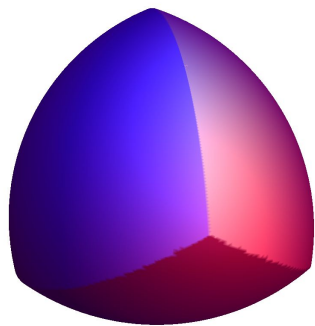➔ Solid bounded by polygons
- ◆ Polygon sides and polygon bases

Edge

Face

Vertex

Not Polyhedra

Determine if these are examples of polyhedra
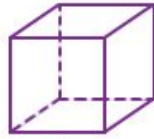
Polyhedra

Prisms:

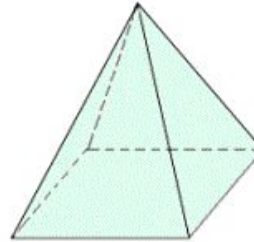➔ 2 parallel bases of congruent polygons

Triangle Prism
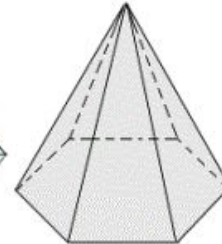Rectangle Prism
Cube
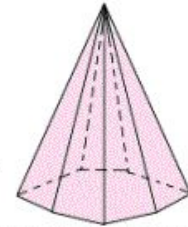Pentagonal Prism
Hexagonal Prism

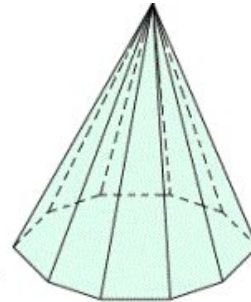**Pyramid:**

➔ 1 base that is a polygon

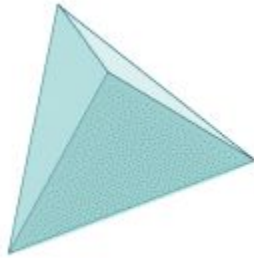rectangular pyramid   hexagonal pyramid   heptagonal pyramid   decagonal pyramid

Regular Polyhedra

Regular polyhedra are known as the Platonic Solids.

They are polyhedra with faces of all congruent regular polygons

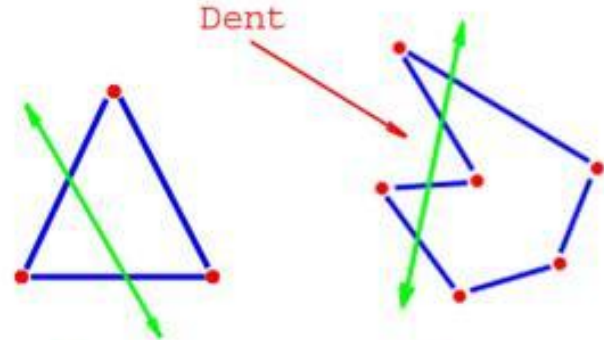Tetrahedron   Hexahedron   Octahedron   Dodecahedron   Icosahedron

Convex vs. Concave

If any two points on the surface of a polyhedra can be connected by a segment that is entirely inside of the figure, it is convex.
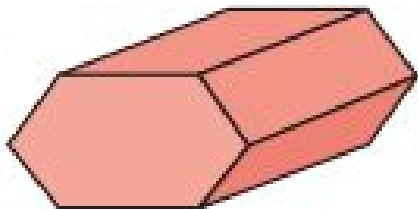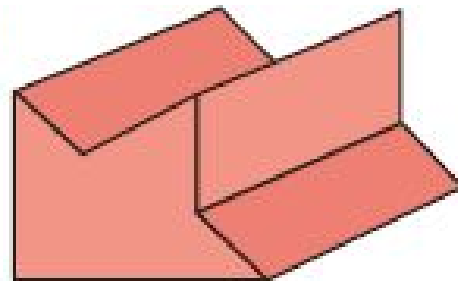

Concave

Convex

Dent

Convex

Concave

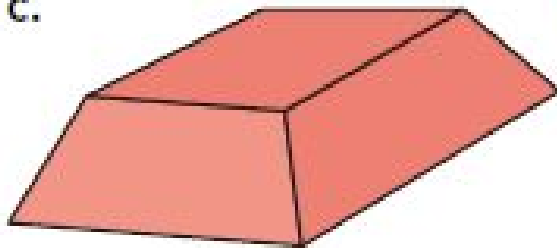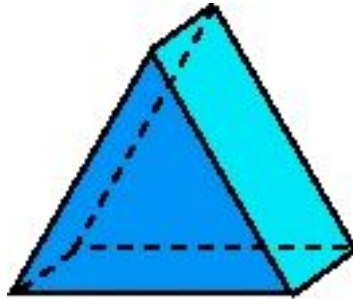# Classify these Polyhedra

a.

b.

c.

Euler's Theorem

The number of Faces (*F*) minus the number of Edges (*E*) plus the number of Vertices (*V*) is equal to 2.

A triangular prism
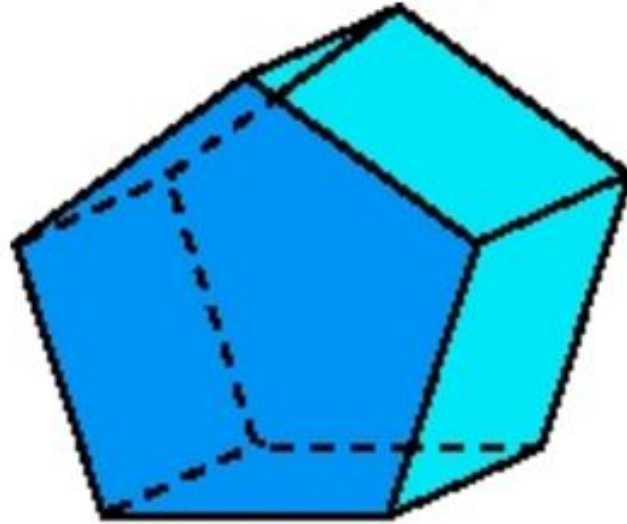
$F = 5$
$E = 9$
$V = 6$
$F - E + V = 2$

Find the number of faces, edges, and vertices, then check your answer using Euler's theorem

Cross Sections

When a plane intersects with a solid, it's called a cross section.

Cross sections create 2-D shapes.