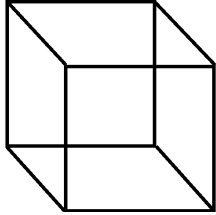
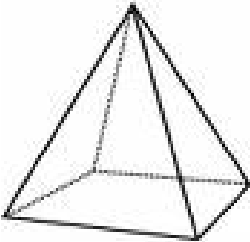
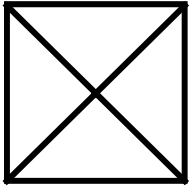
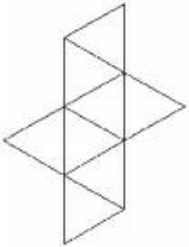
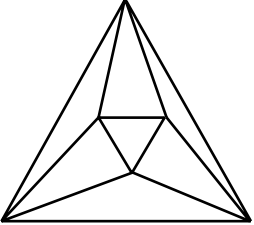
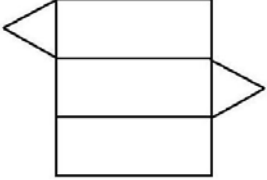
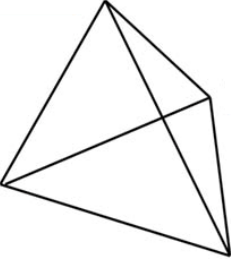


Eastern Region Final Challenge 2010

Round 3 Nets, Polyhedra and Schlegel Diagrams (15 minutes)

REMINDER: Euler's Relation $V + F = E + 2$

1. Complete the following table of information:

	Net	3-D View	Name	Schlegel Diagram
$F = 6$ $E =$ $V =$			Cube	
$F =$ $E = 8$ $V =$				
$F =$ $E =$ $V = 6$				
$F =$ $E =$ $V =$			Triangular Prism	
$F =$ $E =$ $V =$			Regular Tetrahedron	

2. A prism has 7 faces and 15 edges.

How many vertices does the prism have?

Name the prism?

Draw a possible
net of the prism?

Draw a Schlegel diagram
of the prism?

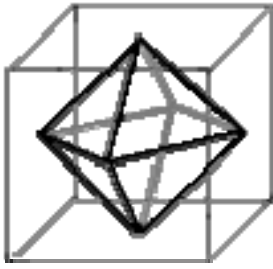
3. A polyhedron has 7 vertices and 12 edges.

How many faces does the prism have?

Name the polyhedron?

Draw a Schlegel diagram
of the prism?

4. If a vertex is placed at the centre of each square face of a cube and each adjacent vertex is joined, an octahedron is created inside the cube. The octahedron is said to be the dual of the cube (and vice a versa).



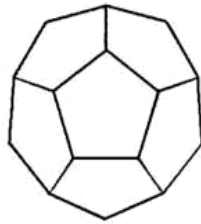
How many faces, edges and vertices does a cube have?

F = V = E =

How many faces, edges and vertices does an octahedron have?

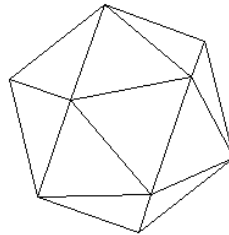
F = V = E =

Explain how this shows that an octahedron is the dual of a cube.



How many faces, edges and vertices does a dodecahedron have?

F = V = E =



How many faces, edges and vertices does icosahedron have?

F = V = E =

Explain how this shows that a dodecahedron is the dual of a icosahedron.

What is the dual of a tetrahedron? Explain why?