

Hands-on L^{wr.} 2ndry Maths

The Platonic Solids

Name : No :

Class :

Date :



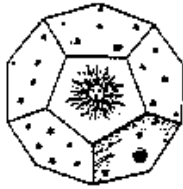
Jon Molomby



Cube
Earth



Tetrahedron
Fire



Dodecahedron
the Universe



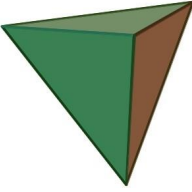
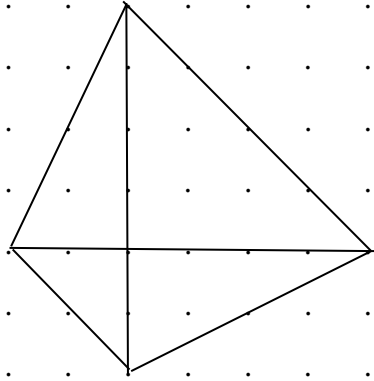
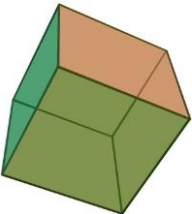
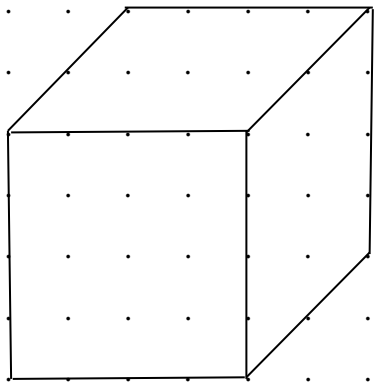
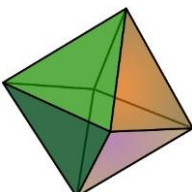
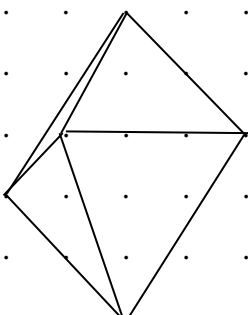
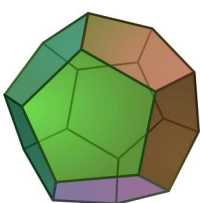
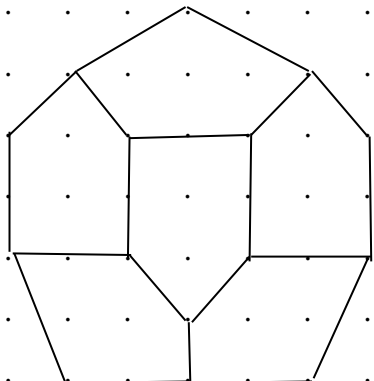
Icosahedron
Water


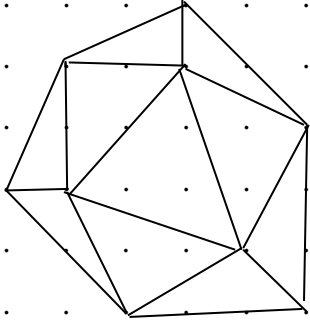


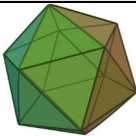
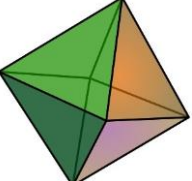
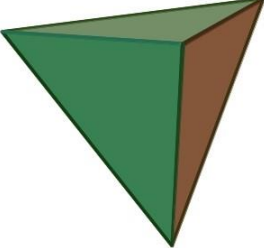
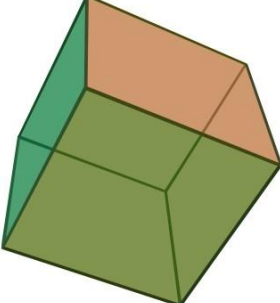
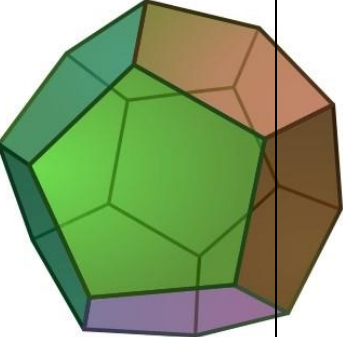
Octahedron
Air



Plato
427-
347 BC

Name of Solid	A) Made on a 7 x 7 geoboard	B) Draw the net	C) Fill out the table												
<p>Tetra- hedron</p> 			<table border="1"> <tr><td>Shape of each face</td><td></td></tr> <tr><td>Faces meeting at each vertex</td><td></td></tr> <tr><td>No. of faces (F)</td><td></td></tr> <tr><td>No. of vertices (V)</td><td></td></tr> <tr><td>No. of edges (E)</td><td></td></tr> <tr><td>Check $F + V - E$</td><td>2</td></tr> </table>	Shape of each face		Faces meeting at each vertex		No. of faces (F)		No. of vertices (V)		No. of edges (E)		Check $F + V - E$	2
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No. of faces (F)															
No. of vertices (V)															
No. of edges (E)															
Check $F + V - E$	2														
<p>Cube</p> 			<table border="1"> <tr><td>Shape of each face</td><td></td></tr> <tr><td>Faces meeting at each vertex</td><td></td></tr> <tr><td>No. of faces (F)</td><td></td></tr> <tr><td>No. of vertices (V)</td><td></td></tr> <tr><td>No. of edges (E)</td><td></td></tr> <tr><td>Check $F + V - E$</td><td>2</td></tr> </table>	Shape of each face		Faces meeting at each vertex		No. of faces (F)		No. of vertices (V)		No. of edges (E)		Check $F + V - E$	2
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Check $F + V - E$	2														

Icosahedron 		Shape of each face	
		Faces meeting at each vertex	
		No. of faces (F)	
		No. of vertices (V)	
		No. of edges (E)	
		Check F + V - E	2

<u>Platonic Solid</u>	D) <u>Side</u>	E) <u>Volume (V)</u> to 2d.p.	F) <u>Surface Area (SA)</u> to 2d.p.
		$V = \frac{5(3 + \sqrt{5})}{12} s^3$ Use a calculator <input type="text"/> u^3	$SA = 5\sqrt{3} s^2$ Use a calculator <input type="text"/> u^2
		$V = \frac{\sqrt{2}}{3} s^3$ <input type="text"/> u^3	$SA = 2\sqrt{3} s^2$ <input type="text"/> u^2
		$V = \frac{\sqrt{2}}{12} s^3$ <input type="text"/> u^3	$SA = \sqrt{3} s^2$ <input type="text"/> u^2
	1	<input type="text"/> u^3	<input type="text"/> u^2
V = 1 u³		SA = 6 u²	
		$V = \frac{(15 + 7\sqrt{5})}{4} s^3$ Use a calculator <input type="text"/> u^3	$SA = 3\sqrt{(25 + 10\sqrt{5})} s^2$ Use a calculator <input type="text"/> u^2 OR SA = 12(½ ap) = 6 ap Use Trig. to find the apothem Then use a calculator <input type="text"/> u^2
		<input type="text"/> u^3	<input type="text"/> u^2

