REGULAR POLYHEDRONS AND PASCAL'S TRIANGLE

J. WLODARSKI
Porz-Westhoven, Federal Republic of Germany

It is known that any convex polyhedron has three parameters. Numerical values of parameters of all regular polyhedrons are shown below.

<table>
<thead>
<tr>
<th>Polyhedron</th>
<th>F</th>
<th>V</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tetrahedron</td>
<td>4</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>2. Hexahedron</td>
<td>6</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>3. Octahedron</td>
<td>8</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>4. Dodecahedron</td>
<td>12</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>5. Icosahedron</td>
<td>20</td>
<td>12</td>
<td>30</td>
</tr>
</tbody>
</table>

where F represents the number of faces, V the number of vertices, and E the number of edges.

Numerical values of these parameters form a sequence:

4, 6, 8, 12, 20, 30.

It is remarkable that the half-values of all members of this sequence form two apexes of Pascal's triangle.

The first apex is situated just below the edge-series of ones and the second one below the first apex.

Both apexes look like this:

```
        1
       /\  
      /   \ 
     /     \ 
    1      1
   /\      /\ 
  1    1   1
  /\    /\  /\ 
1 1   1   1
 /\  /\  /\ 
1 1 1 1 1
```

146