



School:  
Name of Student:  
Sets:  
Further tools: computer  
Date:

**STUDENT**  
**PUSE Task Number**  
**BC**  
**522**

**Description of the task:**

Let's draw a "solid Poly-Universe" in GeoGebra 3D. Plot a cube, then draw smaller cubes the sides of which are half, quarter, eighth, sixteenth of the sides of the original tetrahedron at each vertex. If we draw a small cube at each vertex the edges of which are half of the edges of the previous one, what is the ratio of the edges of the smallest and the original cube? Use GeoGebra's "dilate from point" command. Which cube will be 'almost invisible'? Let's change the scale factor. By what scale factor will the two biggest 'small cubes' touch each other? Colour the cubes. How many different colours do we need in order to colour all the 'small cubes' as well as the basic element differently? How many different cubes could we colour this way? Take your 3D glasses and switch on 3D mode in the slideshow function of GeoGebra3D.

**Solution(s) of the task:**

**Remarks / Self-evaluation:**