



**School:**  
**Name of Student:**  
**Sets:** circle (one set)  
**Further tools:** paper, pencil, calculator  
**Date:**

**STUDENT**  
**PUSE Task Number**  
**C**  
**230**

**Description of the task:**

Special shapes:

1/a Connect three basic element circles with same colour and size connections of the large semicircles. How many shapes can you construct this way, using the entire set?

1/b Is it possible to connect small or medium-size semicircles in this layout (with vertex connections)?



2/a After constructing a possible layout of the entire set, can you rearrange it in a way that the base colour of the elements are different in each shape?

2/ b How many different layouts are possible, using the entire set? (Don't consider the position of the elements in the arrangement, e.g. the reflection of an element, only the 3 elements included in a shape.)

3/a What is the probability that choosing 3 elements randomly, large semicircles can surely be connected with same colour connections?

3/b What is the probability that choosing 3 elements randomly, large semicircles can surely be connected with same colour connections and the elements have different base colours?

Let's relax and build a large symmetric shape with this special base form connection.

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

**Remarks / Self-evaluation:**