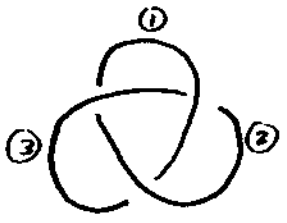
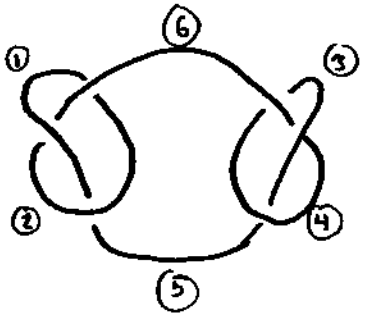
7) i) Every coloring of the right trefoil 

must color each of the three arcs a different color.

There are 3 ways to choose the color of arc ①.
This leaves 2 ways to choose the color of arc ②.
The color of arc ③ is then fixed.

So, there are $3 \cdot 2 \cdot 1 = 6!$ colorings, all together.

ii) Consider the knot 

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A simple examination of this knot diagram shows that if one colors arcs ①, ②, and ③ then the colors of the other arcs are determined.

Moreover, if the colors of ① & ② are different then ③ can be any color. However if ① and ② are the same color then ③ must be a different color, otherwise every arc would have the same color.

So there are essentially 4 types of colorings, as illustrated on the next page.