Answer on Question #38238, Math, Combinatorics | Number Theory

Problem.

A table has 7 seats, 4 placed on the side towards window and 3 placed on the opposite side. In how many ways can 7 people be seated at the table if 3 people x,y and z have to be seated on the side facing towards window?

Solution.

At first, we have to find how many ways are for x, y and z to be seated.

It's $4 \cdot 3 \cdot 2 = 24$ ways.

And for other 4 people when x,y and are already sitting:

$$4 \cdot 3 \cdot 2 \cdot 1 = 24 \, ways.$$

Using the product rule we can find that for all 7 people there are $24 \cdot 24 = 576$ different ways to be seated.

Answer.

576 ways.