Answer on Question #82247 – Math – Algebra

Question

The numbers 1 to 8 are written on seven balls. Miyad took five balls from there

such that if he multiplies the numbers of the balls and than say it to Mursalin, then

Mursalin can’t say the number of the balls surely. In how many ways Miyad can

do this?

Solution

This situation is possible if 5 numbers chosen by Miyad contain two numbers, which product is equal to product of two unchosen numbers.

We have numbers 1, 2, 3, 4, 5, 6, 7. If Miyad takes 2, 3, 4, 5, 7, Mursalin won't be able to tell the number of balls surely, because 2*3 = 6*1. The same happens if Miyad takes 6, 1, 4, 5, 7.

The same situation happens with numbers 3 and 4. (because 3*4 = 6*2).

Thus, 2*3*4*5*7 = 6*1*4*5*7 and 3*4*1*5*7 = 6*2*1*5*7.

Answer: 4 ways, namely

2, 3, 4, 5, 7

6, 1, 4, 5, 7

3, 4, 1, 5, 7

6, 2, 1, 5, 7