Answer on Question #69787 – Math – Statistics and Probability

Question

Three groups of children consist of 3 girls and 1 boy, 2 girls and 2 boys, 1 girl and 3 boys respectively. One child is picked up at random from each group. Find the probability that the selection consist of 1 girl and 2 boys?

Solution

The total number of events ("take one from each group") is

$$n_{tot} = 4 \times 4 \times 4 = 64.$$

Let us calculate the number of successive events ("1 girl and 2 boys").

If we take a girl

from the first group then $n_1 = 3 \times 2 \times 3 = 12$,

from the second group then $n_2 = 2 \times 3 \times 1 = 6$,

from the third group then $n_3 = 1 \times 2 \times 1 = 2$.

The probability that the selection consists of 1 girl and 2 boys is given by

$$P = \frac{n_1 + n_2 + n_3}{n_{tot}} = \frac{20}{64} = 0.3125.$$

Answer: 0.3125.