Answer on Question #57584 – Math – Combinatorics | Number Theory

Question

There are 15 boys and 10 girl in your class. A four number committee is to be formed from the student of your class. In how many ways this can be done if the committee consist at least three girls?

Solution

If in this committee should be at least 3 girls, then there are 2 possibilities: 3 girls and 1 boy and 4 girls and no boys.

So, the total number of combinations will be

$N = C(1;15)\cdot C(3;10) + C(4;10) = 15!/(1!\cdot(15 - 1)!)\cdot 10!/(3!\cdot(10 - 3)!) + 10!/(4!\cdot(10 - 4)!) =$
$=15\cdot 4\cdot 3\cdot 10 + 7\cdot 8\cdot 9\cdot 10/24 = 1800 + 210 = 2010.$

Answer: 2010.