Answer on Question #47507 – Math – Statistics and Probability

Question.

There are 5 men and 5 women to be selected to make a committee of 5 members. What is the probability that all committee members are from one gender?

Solution.

$P(all\ committee\ members\ are\ from\ one\ gender) =$

$= P(all\ committee\ members\ are\ men) + P(all\ committee\ members\ are\ women) =$

$= \frac{C_5^5}{C_{10}^5} + \frac{C_5^5}{C_{10}^5} = 2 \cdot \frac{(5!)^2}{10!} = \frac{2 \cdot 2 \cdot 3 \cdot 4 \cdot 5}{6 \cdot 7 \cdot 8 \cdot 9 \cdot 10} = \frac{1}{126}.$

Answer: $\frac{1}{126}$