

## Answer on Question #70838 – Math – Statistics and Probability

### Question

Dawn Corporation has 12 employees who hold managerial positions. Of them, 7 are female and 5 are male. The company is planning to send 3 of these 12 managers to a conference. If 3 managers are randomly selected out of 12, Find the probability that at most 2 of them are female.

### Solution

$A = \{ \text{not more than 2 women will go to the conference} \}$

On the basis of the addition theorem and the multiplication theorem for probabilities, we get

$$P(A) = \frac{C_5^3}{C_{12}^3} + \frac{C_5^2 \cdot C_7^1}{C_{12}^3} + \frac{C_5^1 \cdot C_7^2}{C_{12}^3} = 0.841,$$

where  $C_n^k = \frac{n!}{k! \times (n-k)!}$ ,  $k! = 1 \times 2 \times 3 \times \dots \times k$ ,  $0! = 1$ .

**Answer:** 0.841.