

# Assignment 6

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Download all python codes from

<https://github.com/AmulyaTallamraju/Assignment-7/blob/main/Assignment7/codes/Assignment-7.py>

and latex-tikz codes from

<https://github.com/AmulyaTallamraju/Assignment-7/blob/main/Assignment7/Assignment-7.tex>

## GATE 2020 ME SET-1 - Q.23

A company is hiring to fill four managerial positions. The candidates are five men and three women. If every candidate is equally likely to be chosen then the probability that at least one woman is chosen is

### SOLUTION

Let  $X \in \{0, 1, 2, 3\}$  denotes the number of woman candidates chosen.

$$\Pr(X = x) = \frac{{}^3C_x \times {}^5C_{4-x}}{{}^8C_4} \quad (0.0.1)$$

X	0	1	2	3
P(X)	$\frac{{}^3C_0 \times {}^5C_4}{{}^8C_4}$	$\frac{{}^3C_1 \times {}^5C_3}{{}^8C_4}$	$\frac{{}^3C_2 \times {}^5C_2}{{}^8C_4}$	$\frac{{}^3C_3 \times {}^5C_1}{{}^8C_4}$

The complement of the event "at least one woman candidate is chosen" is "no woman candidate being chosen"

$$\Pr(X \geq 1) = 1 - \Pr(X = 0) \quad (0.0.2)$$

$$= 1 - \frac{{}^3C_0 \times {}^5C_{4-0}}{{}^8C_4} \quad (0.0.3)$$

$$= \frac{13}{14} \quad (0.0.4)$$

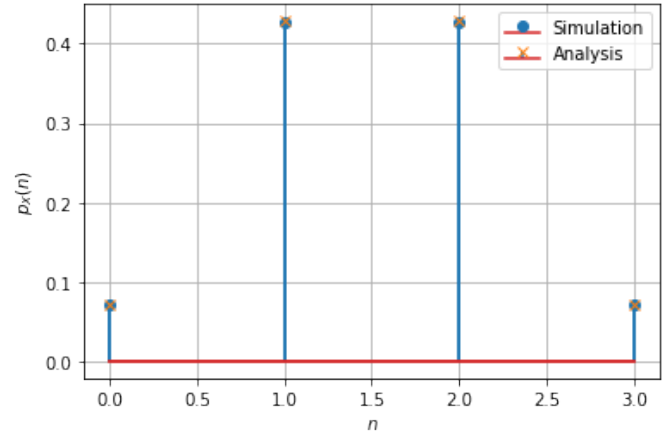


Fig. 0: Probability that n women are chosen