[1] Find the probability of getting a hand of 4 cards with no Kings from a deck of 52 cards.

Total No. of ways to draw 4 cards

\[ = \binom{52}{4} \]

No. of ways to draw 4 cards with Kings Removed

\[ = \binom{48}{4} \]

\[ = \frac{\binom{48}{4}}{\binom{52}{4}} = \frac{48 \times 47 \times 46 \times 45}{52 \times 51 \times 50 \times 49} \]
[2] The probability of getting a Head in a biased coin is 0.7. If the coin is tossed three times find the PMF of the number of Heads.

\[
P(\text{Zero Heads}) = (0.3)^3
\]

\[
P(\text{One Head & 2 Tails}) = \binom{3}{1}(0.7)(0.3)^2 = 3 \times 0.7 \times 0.3^2
\]

\[
P(\text{2 Heads & 1 Tail}) = \binom{3}{2}(0.7)^2(0.3) = 3 \times 0.7^2 \times 0.3
\]

\[
P(\text{3 Heads}) = 0.7^3
\]

\[
N = \text{No. of Heads}
\]