

## Практическое задание №2

1.  $p = 0,8$        $q = 1 - p = 0,2$

$$C_{100}^{85} = \frac{100!}{85! \cdot 15!};$$

$$P_n = C_{100}^{85} \cdot 0,8^{85} \cdot 0,2^{15} = 0,048$$

2.  $\lambda = p \cdot n = 2$

$$P_0 = \frac{2^0}{0!} e^{-2} = 0,13$$

$$P_2 = \frac{2^2}{2!} e^{-2} = 0,26$$

3.  $C_{144}^{70} = \frac{144!}{70! \cdot 74!};$

$p = 0,5$        $q = 0,5$

$$P = C_{144}^{70} \cdot 0,5^{70} \cdot 0,5^{74} = 0,063$$

4.1.  $C_7^2 = \frac{7!}{2! \cdot 5!} = \frac{6 \cdot 7}{2} = 21$

$$C_3^0 = \frac{3!}{3!} = 1;$$

$$C_1 = 21;$$

$$C_9^2 = \frac{9!}{2! \cdot 7!} = \frac{8 \cdot 9}{2} = 36) \quad C_2^0 = 1 \Rightarrow C_2 = 36$$



$$C_{10}^2 = \frac{10!}{2!8!} = \frac{9 \cdot 10}{2} = 45$$

$$C_{11}^2 = \frac{11!}{2!9!} = 55$$

$$p = \frac{21}{45} \cdot \frac{36}{55} = 0,3$$

2.2.

$$P = \frac{7}{10} \cdot \frac{6}{9} + \frac{3}{11} \cdot \frac{8}{10} =$$

$$C_7^1 = 7 \quad C_3^1 = 3 \quad C_7^2 = 21 \quad C_3^2 = 3 \quad C_7^0 = 1 \quad C_3^0 = 1$$

$$C_9^1 = 9 \quad C_2^1 = 2 \quad C_9^2 = 36 \quad C_2^2 = 1 \quad C_9^0 = 1 \quad C_2^0 = 1$$

$$P = \frac{21}{45} \cdot \frac{1}{55}$$

$$P = \frac{21}{45} \cdot \frac{1}{55} + \frac{3}{45} \cdot \frac{18}{55} = 0,03$$

$$2.3. \quad p = \frac{21}{45} \cdot \frac{1}{55} + \frac{21}{45} \cdot \frac{18}{55} + \frac{1}{45} \cdot \frac{36}{55} =$$

$$= 0,17$$

2.3.

$$p = \frac{21}{45} \cdot \frac{1}{55} + \frac{3 \cdot 18}{45 \cdot 55} = 0,03$$