

Homework N26.

N1.

$$S = \{a, b, c\}$$

$$P(3, 3) = 3! = 6$$

N2.

$$P(6, 3) = \frac{6!}{(6-3)!} = \frac{\overset{30}{6} \times \overset{120}{5} \times \overset{360}{4} \times \overset{720}{3} \times 2 \times 1}{3 \times 2 \times 1} = \frac{720}{6} = 120$$

N3.

$$C(5, 3) = C(5, 5-3) = \frac{5!}{(5-3)! 2!} = \frac{5 \times 4 \times 3 \times 2 \times 1}{(3 \times 2 \times 1) \cdot 2 \times 1} = 10$$

N4.

$$S = \{A, B, C, D, E\}$$

$$P(5, 5) = 5! = 5 \times \overset{20}{4} \times \overset{60}{3} \times \overset{120}{2} \times 1 = 120.$$

N5.

$$P(10, 4) = 16$$

$$C(10, 4) = C(10, 10-4) = \frac{10!}{(10-4)! 4!} = \frac{10!}{4! 6!} = \frac{\overset{80}{10} \times \overset{2}{9} \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{\underset{1}{4} \times 3 \times 2 \times 1 \cdot 6 \times 5} = \frac{630}{3} = 210$$

N6.

$$C(99, 2) = \frac{99!}{(99-2)! 2!} = \frac{99!}{97! 2!} = \frac{99 \times 98}{2 \times 1} = 4851.$$