1. gyakorlat

① a) $26^4 - 26$

b) $\frac{7!}{3! \cdot 2!}$

c) $\frac{25!}{20!}$

d) $\binom{24}{4} + \binom{25}{5}$

② e) $\binom{25+5-1}{5} = \binom{29}{5}$

f) $\binom{26}{9}$

② $\log_2 \left(\binom{101}{0} + \binom{101}{1} + \ldots + \binom{101}{50} \right) = \log_2 2^{100} = 100$

$\binom{101}{101} + \binom{101}{100} + \ldots + \binom{101}{51}$ $\quad 100.00$

③ a) $5! \cdot \binom{25}{4}$

b) $26^5 - 25^5$

c) $\binom{25}{4}$

d) $\binom{26+5-1}{5} - \binom{25+5-1}{5} = \binom{30}{5} - \binom{29}{5} = \binom{29}{4}$

④ $\binom{5}{5} + \binom{5}{4} \cdot \binom{5}{1} + \binom{5}{3} \cdot \binom{5}{2} =$

$\frac{n! \quad \ldots \quad (n-1)!}{}$

(5) $\binom{30}{4}^{16}$

$k(\ell) = n \cdot (\ell - 1)$

(6) $\binom{30}{6}$

(7) $\log_2\left(1\binom{32}{1} + 2\binom{32}{2} + \ldots + 32\binom{32}{32}\right) = \log_2\left(32\left(\binom{32}{1} + \binom{32}{2} + \ldots + \binom{32}{16}\right)\right)$

$32 \cdot \binom{32}{1}$ $\quad 31 \cdot \binom{32}{31}$ $\quad \binom{32}{0}$

$= \log_2\left(16 \cdot 2^{32}\right) = 36$

(8) $\binom{15}{3} \cdot \left(\binom{24}{6} - \binom{12}{3}\right) = \frac{15!}{12! \cdot 3!} \cdot \left(\frac{24!}{6! \cdot 18!} - \frac{12!}{3! \cdot 9!}\right)$

(9) $\binom{24 + 5 - 1}{5}$ féleképpen lehet kiválasztani a maradék 5 betűt

$\frac{12!}{3! \cdot 4! \cdot 5!} \cdot 24^5$ $\quad 24^5$ féleképpen lehet sorbarendezni

(10) $\binom{90 + 20 - 1}{\quad}$

(a) $\binom{5}{20}$

(b) $\binom{90}{5}_{20}$

(c) $\binom{89}{4}_{7} \cdot \binom{89}{5}_{13}$

(d) $\left(\binom{88}{3} + \binom{89}{5}_{20} + 20 - 1\right)$

(11) $\binom{8}{3} \cdot \binom{10}{3} = \frac{8!}{3! \cdot 5!} \cdot \frac{16!}{7! \cdot 9!}$

(12)