

Ocensu Shencangp 0362 Basmarit 11

Nº	Orbeot
1	$C_{17}^{13}$
2	$C_{114}^4$
3	572
4	eeabad
5	a) $N=10$ m.m $N=15$ b) $C_{14}^4 - 5C_8^4$
6	5241936
7	76
8	$\frac{16}{21}$

$$\text{Orb: } C_{17}^{13}$$

2.  $x_1 + x_2 + x_3 + x_4 + x_5 = 95$

$$x_i \geq -3$$

$$y_i \geq 1$$

$$y_1 + y_2 + y_3 + y_4 + y_5 = 95 + 4 \cdot 5 = 115$$

$$\text{Orb: } C_{114}^4$$

3.  $\begin{array}{l} 111 \\ 888 \\ \hline \end{array} \quad (0, 1, 2, 3, 4, 5, 6, 7, 8)$

$$8^3 = 512$$

$$\text{Orb: } 512$$

4.  $36328 - 1 = 36327$

$$36327 = 6 \cdot 6054 + 3$$

$$6054 = 1009 \cdot 6 + 0$$

$$1009 = 6 \cdot 168 + 1$$

$$168 = 6 \cdot 28 + 0$$

$$28 = 6 \cdot 4 + 4$$

$$36327_{10} = 440103_6$$

$$\{a, b, c, d, e, f\}$$

$$440103 = eeabaa$$

$$\text{Orb: } eeabaa$$

5.  $217 - \text{seen}$

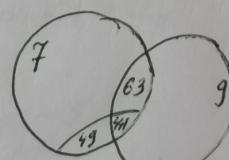
$$\{7\} - 106 \quad \{63\} - 43$$

$$\{9\} - 56$$

$$\{49\} - 22$$

$$\{441\} - 18$$

$$X = \{7\} \cup \{9\} \cup \{49\} - ?$$



$$X = \{7\} + \{9\} - 2\{63\} = 106 + 56 - 2 \cdot 43 = 76$$

$$\text{Orb: } 76$$

6.

$3053 - 1 = 3052$ $3052 = 2 \cdot 1526 + 0$ $1526 = 3 \cdot 508 + 2$ $508 = 4 \cdot 127 + 0$ $127 = 5 \cdot 25 + 2$ $25 = 6 \cdot 4 + 1$	$0 \begin{smallmatrix} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \end{smallmatrix}$	$4 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 5$ $1 \quad 1 \quad 2 \quad 3 \quad 4 \quad 6 \quad 7 \quad 2$ $2 \quad 1 \quad 3 \quad 4 \quad 6 \quad 7 \quad 4$ $0 \quad 1 \quad 3 \quad 6 \quad 7 \quad 1$ $2 \quad 3 \quad 6 \quad 7 \quad 7$ $0 \quad 3 \quad 6 \quad 3$ $\emptyset \quad 6 \quad 6$
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Ordet: 5241736

7.  $x_1 x_2 x_3 x_4 x_5 \quad x_i \in [0, 5]$

a) N?

$$x_1 + x_2 + x_3 - 5 = x_4 + x_5$$

$$\textcircled{1} \begin{cases} x_i = 5 - a_i; i \leq 3 \\ x_i = a_i; i > 3 \end{cases}$$

$$5 - a_1 + 5 - a_2 + 5 - a_3 - 5 = a_4 + a_5$$

$$a_1 + a_2 + a_3 + a_4 + a_5 = 10 \Rightarrow N = 10$$

$$\textcircled{2} \begin{cases} a_i = x_i; i \leq 3 \\ x_i = 5 - a_i; i > 3 \end{cases}$$

$$a_1 + a_2 + a_3 - 5 = 5 - a_4 + 5 - a_5$$

$$a_1 + a_2 + a_3 + a_4 + a_5 = 15 \Rightarrow N = 15$$

I

$$C_{10+5-1}^4 = C_{14}^4$$

$$a'_1 = a_1 - 6$$

$$a'_1 + a_2 + a_3 + a_4 + a_5 = 4 \Rightarrow C_{4+5-1}^4 = C_8^4$$

Viður  $C_5^1$

$$\text{Þórga } C_{14}^4 - C_5^1 \cdot C_8^4 = C_{14}^4 - 5C_8^4$$

$$\text{II } (1+x+x^2+\dots+x^5)^5 = 1 + x + x^2 + \dots + a_{10}x^{10} + \dots$$

$$S = 1 + x + x^2 + \dots + x^5 + a_{10}x^{10} + \dots$$

$$xS = x + x^2 + \dots + x^6$$

$$S = \frac{1-x^6}{1-x}; f = (1-x^6)S(1+x+x^2+\dots+x^5+\dots)^5 \Rightarrow (1-x^6)^5 = (1-5x^6+\dots)$$

$$(1+x+x^2+\dots+x^6+\dots)^5 = C_{14}^{4,10} + C_8^4 x^{14} + \dots$$

$$(1-5x^6)(\dots + C_{14}^4 x^{10} + C_8^4 x^4 + \dots) = C_{14}^4 - 5C_8^4$$

$$\text{Orðet: a) } N=10 \text{ um N}=15; \text{ b) } C_5^1 - 5C_8^4$$

8. 11-Γ

$$11-K \quad 1 - \frac{11}{22} \cdot \frac{10}{21} = 1 - \frac{5}{21} = \frac{16}{21}$$

Ober:  $\frac{16}{21}$