

$$ANNE_5 + ANNE_7 = ANNE_8$$

$$A, N, E \in \{0, 1, 2, 3, 4\}$$

A, N, E distinct

$$\begin{aligned} ANNE_5 &= E \times 1 \\ &+ N \times 5 \\ &+ N \times 25 \\ &+ A \times 125 \end{aligned} \quad \left. \vphantom{\begin{aligned} ANNE_5 &= E \times 1 \\ &+ N \times 5 \\ &+ N \times 25 \\ &+ A \times 125 \end{aligned}} \right\} 30N$$

$$\begin{aligned} ANNE_7 &= E \times 1 \\ &+ N \times 7 \\ &+ N \times 49 \\ &+ A \times 343 \end{aligned} \quad \left. \vphantom{\begin{aligned} ANNE_7 &= E \times 1 \\ &+ N \times 7 \\ &+ N \times 49 \\ &+ A \times 343 \end{aligned}} \right\} 56N$$

$50 \times 7 = 350$
 $8^3 = (2^3)^3$
 $= 2^9$
 $= 512$

$$\begin{aligned} ANNE_8 &= E \times 1 \\ &+ N \times 8 \\ &+ N \times 64 \\ &+ A \times 512 \end{aligned}$$

343
 $\underline{125}$
 468

$$2E + 86N + 468A = E + 72N + 512A$$

$$\Rightarrow E + 14N = 44A$$

$$A, N, E \in \{0, 1, 2, 3, 4\}$$

$$\begin{array}{r} 1468 \\ 50 \\ \hline 518 \end{array}$$

$$44 \times 3$$

	4		40	
3	12		120	132

$$\begin{array}{r} 468 \\ 144 \\ \hline 512 \end{array}$$

	10		4	
4	40		16	56

$$44 \times 2 = 88$$

$$(44 \times 1)$$

	10		4	
③	30		12	42

②

$$E = 2$$

$$N = 3$$

$$A = 1$$