

北一女中 103 學年度《數戰數決》有獎徵答活動

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題號：1-3 頁碼/總頁數：_____ (如果只有一頁，可不填)

$$\begin{cases} n+1b = a^2 - 0 \\ 1bn+1 = b^2 - 0 \end{cases}, \text{ 且 } a, b \in \mathbb{N}, (\text{因 } a, b \text{ 正負不影響 } n \text{ 之值}).$$

$$\textcircled{1} \times 1b - \textcircled{2} \quad 16a^2 - b^2 = 16n + 256 - 16n - 1 = 255 = 3 \times 5 \times 17$$

$$(4a+b)(4a-b) = 3 \times 5 \times 17, \quad \therefore 4a+b > 4a-b$$

$$1^{\circ} \begin{cases} 4a+b = 255 \\ 4a-b = 1 \end{cases}, \begin{cases} a = 32 \\ b = 127 \end{cases}, \quad n = 32^2 - 1b = 1008$$

$$2^{\circ} \begin{cases} 4a+b = 85 \\ 4a-b = 3 \end{cases}, \begin{cases} a = 11 \\ b = 41 \end{cases}, \quad n = 11^2 - 1b = 105$$

$$3^{\circ} \begin{cases} 4a+b = 51 \\ 4a-b = 5 \end{cases}, \begin{cases} a = 7 \\ b = 23 \end{cases}, \quad n = 7^2 - 1b = 33$$

$$4^{\circ} \begin{cases} 4a+b = 17 \\ 4a-b = 15 \end{cases}, \begin{cases} a = 4 \\ b = 1 \end{cases}, \quad n = 4^2 - 1b = 0 \text{ (不合)}$$

$\therefore n = 33, 105, 1008 \#$