

北一女中 107 學年度《數戰數決》有獎徵答活動

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題號：5-1 頁碼/總頁數：_____ (如果一題只有一頁，可不填)

(請不要將兩題的解答寫在同一張答案紙，一題的解答也不要寫在同一張答案紙的正反面。)

$$\text{令 } \{x\} = a, \{x\} = d \Rightarrow x = a + d, a \in \mathbb{Z}, 0 \leq d < 1$$

$$\{x\} \cdot \{x\} = 2019x \Rightarrow a \cdot d = 2019(a + d)$$

$$\Rightarrow d = \frac{2019a}{a-2019} \quad \therefore 0 \leq \frac{2019a}{a-2019} < 1$$

$$\text{當 } \frac{2019a}{a-2019} \geq 0 \Rightarrow 2019a(a-2019) \geq 0 \Rightarrow a \leq 0 \text{ or } a \geq 2019$$

$$\text{當 } \frac{2019}{a-2019} < 1 \Rightarrow \frac{2019a}{a-2019} - 1 < 0 \Rightarrow \frac{2018a+2019}{a-2019} < 0$$

$$\Rightarrow -\frac{2019}{2018} < a < 2019$$

由以上二式，且 $a \in \mathbb{Z} \Rightarrow a = 0, \text{ or } a = -1$

$$\Rightarrow d = 0, \text{ or } d = \frac{2019}{2020}$$

$$\therefore x = 0, \text{ or } x = -\frac{1}{2020}$$