

永中鍾定邦

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NO 三校數 155  
三校數作 114

ex.9  $p > 0, p \in \mathbb{R}$ , 其小數部分, 整數部分, 中依序成等比數列, 求  $p$ .

$$\begin{aligned} ap &= (p-a)^2 \\ \Rightarrow ap &= p^2 + a^2 - 2ap \\ \Rightarrow a^2 + p^2 - 3ap &= 0 \\ \Rightarrow a &= \frac{3p \pm \sqrt{9p^2 - 4p^2}}{2} \\ &= p \left( \frac{3 \pm \sqrt{5}}{2} \right) \text{ 取負} \\ \Rightarrow a &= \frac{3-\sqrt{5}}{2} p \end{aligned}$$

$$\begin{array}{c} a \\ p-a \\ p-n < 1 \\ \downarrow \text{xr} \\ \textcircled{n} \\ \parallel \text{xr} \geq 1, \dots \\ 1 \end{array}$$

$$\begin{aligned} a, 1, p \\ \Rightarrow \frac{1}{p}, 1, p \\ \Rightarrow p = 1 + \frac{1}{p} \\ \Rightarrow p^2 - p - 1 &= 0 \\ \Rightarrow p &= \frac{1 \pm \sqrt{1+4}}{2} = \frac{1 \pm \sqrt{5}}{2} \text{ 取正} \\ \Rightarrow p &= \frac{1+\sqrt{5}}{2} \# \end{aligned}$$