

۱. $(n+1)^2 = n^2 + 2n + 1$ $\checkmark$ (الف)
 $(n+1)^2 = n^2 + 2n + 1$ $\checkmark$ (ب)
 $n^2 = |n|^2 \leq \frac{n}{|n|} = \frac{|n|}{n} \checkmark$ (ج)

۲. $\checkmark$ (الف)
 $\times$ (ب)
 $\times$ (ج)
 $\checkmark$ (د)

۳. $\begin{cases} f(n) + g(n) = n^2 + n + 1 \\ f(n) - g(n) = n^2 - n + 1 \end{cases} \Rightarrow \begin{cases} 2f(n) = 2n^2 + 2 \\ f(n) = n^2 + 1 \\ g(n) = n \end{cases}$

۴. $(n + \sqrt{n^2 - r}) \times (n - \sqrt{n^2 - r})$

$n^2 - n\sqrt{n^2 - r} + n\sqrt{n^2 - r} - n^2 + r = r$

۵. $\frac{a+b}{n-b} = \frac{a+b}{n-b} \Rightarrow \frac{a+b}{n-b} = \frac{a+b}{n-b}$

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$$\left. \begin{aligned} &\{(2, 1), (3, 2), (-1, -1), (0, 0)\} \\ &\{(-1, -2), (2, 1), (3, 2), (0, 0) \} \end{aligned} \right\} f = \{(-1, 2), (2, 4), (3, -2), (0, \frac{1}{2}) \}$$

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$$a = -1 \quad , \quad a = -1 \quad \Rightarrow \quad a + c = -1 + 3 = 2$$

$$c = a - 2b \Rightarrow c = -1 - 2b \Rightarrow c = -1 + 3 = 3$$

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$$2a - 2b = 1 \Rightarrow -3 - 2b = 1 \Rightarrow -2b = 4 \Rightarrow b = -2$$

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وقت ندرم حل کنیم: