

$$f(a) = (a+1)(a+2) = Va + V, f(-2) = 3a - 2 \quad (1)$$

$$\Rightarrow V(Va + V) = 3a - 2 \Rightarrow 10a = -11 \Rightarrow a = \frac{-11}{10} = \frac{-9}{10} \quad (2)$$

$$(x - \sqrt{x})(x + \sqrt{x}) = 1 \Rightarrow \text{مضروب } x \text{ و } \frac{1}{x} \quad (3)$$

$$f\left(\frac{1}{x}\right) = \sqrt{\frac{1}{x}} + \frac{1}{\sqrt{\frac{1}{x}}} + 2 = \frac{1}{\sqrt{x}} + \sqrt{x} + 2 = f(x) \Rightarrow f(x) = f\left(\frac{1}{x}\right)$$

$$\Rightarrow f(x + \sqrt{x}) = f\left(\frac{1}{x - \sqrt{x}}\right) = f(x - \sqrt{x})$$

$$\Rightarrow f(x - \sqrt{x}) + f(x + \sqrt{x}) = 2f(x - \sqrt{x})$$

$$Va \Rightarrow f(x) = \frac{1}{\sqrt{x}} + \sqrt{x} + 2 = A + 2$$

$$A = x + \frac{1}{x} + 2 = (x - \sqrt{x}) + (x + \sqrt{x}) + 2 = 2x + 2 \Rightarrow A = 2x \quad (4)$$

$$f(x - \sqrt{x}) = \sqrt{4} + 2 \Rightarrow f(x - \sqrt{x}) + f(x + \sqrt{x}) = 2(\sqrt{4} + 2) = 2\sqrt{4} + 4$$

$$\begin{cases} 2f(x) - 3f(-x) = 2x^2 - x \\ 2f(-x) - 3f(x) = 2x^2 + x \end{cases} \Rightarrow \begin{cases} 4f(-x) + 2f(x) = 1x^2 - 2x \\ 4f(-x) - 3f(x) = 1x^2 + 2x \end{cases} \quad (5)$$

$$\Rightarrow f(x) = -2x^2 - \frac{1}{2}x \quad (6) \quad -2f(x) = 2x^2 + x$$

$$x = 0 \Rightarrow 2f(0) - 3(0)f(2) = 2(0)^2 - m(0) + 3m - 1 \quad (7)$$

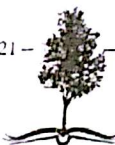
$$\Rightarrow 2f(0) - 0 = 3m - 1 \Rightarrow f(0) = \frac{3m - 1}{2} \Rightarrow m = \frac{2f(0) + 1}{3}$$

$$x = -2 \Rightarrow (0)f(-2) - 3(-2)f(0) = 14 + 2m + 3m - 1$$

$$\Rightarrow 4f(0) = 13 + 5m$$

$$\Rightarrow 4f(0) = 13 + 5\left(\frac{2f(0) + 1}{3}\right) \Rightarrow 11f(0) = 13 + 1f(0) + 5 \Rightarrow 10f(0) = 18 \Rightarrow f(0) = \frac{9}{5}$$

$$\Rightarrow 11f(0) = 18 \Rightarrow f(0) = \frac{18}{11}$$



Def / $f(n) + f\left(\frac{1}{n}\right) = \frac{n^2 - 1}{n} \Rightarrow f(-1) = ?$ (A)

$$= (an + b) + \left(\frac{a}{n} + b\right) = \frac{an^2 + \frac{a}{n} + 2b}{n}$$

$$\Rightarrow an + \frac{a}{n} + 2b = n - 1 + \frac{1}{n} \Rightarrow \frac{n^2 - 1}{n} = n - 1 + \frac{1}{n}$$

$$a = 1 \Rightarrow b = -1 \Rightarrow f(-1) = 1(-1) - 1 = -2$$

$f(n) = (n-1)\sqrt{1-n}$ $1-n \geq 0 \Rightarrow n \leq 1 \Rightarrow D_f = (-\infty, 1]$ (4)

$g(n) = \sqrt{(1-n)^3}$ $(1-n)^3 \geq 0 \Rightarrow 1-n \geq 0 \Rightarrow n \leq 1 \Rightarrow D_g = (-\infty, 1]$

$f(n) = g(n) \Rightarrow \sqrt{1-n} = \sqrt{(1-n)^3} \Rightarrow \sqrt{1-n} = \sqrt{(1-n)^3}$

$f(n) = n\sqrt{n} \rightarrow D_f = [0, +\infty)$ (V)

$g(n) = \sqrt{n^3} \rightarrow D_g = [0, +\infty)$ (V)

$n\sqrt{n} = n^{\frac{3}{2}} \Rightarrow \sqrt{n^3} = n^{\frac{3}{2}}$

Simple for

$f(n) = [\sqrt{n} - \sqrt{n}]$ $n \geq 0$ $n=1 \Rightarrow \dots \rightarrow$ (A)

$g(n) = \sqrt{n - |n|}$ $n - |n| \geq 0 \Rightarrow n \geq |n| \Rightarrow n \geq 0$ $n = |n|$

$\frac{1}{n} - \frac{1}{n} = 0 \Rightarrow \dots$ (V)

$$f = \{(1, 2), (2, 3), (3, 1), (0, 0)\}$$

$$g = \{(-1, 1), (1, 1), (2, 3), (3, 4), (0, 2), (\sqrt{2}, 1)\}$$

$$الف) \left(\frac{f+g}{f-g} \right) (1) = \frac{3}{1} = 3$$

$$(f+g)(1) = f(1) + g(1) = 2 + 1 = 3 \quad (f-g)(1) = f(1) - g(1) = 2 - 1 = 1$$

$$ب) \left(\frac{f+g}{f-g} \right) (2) = 2$$

$$(f+g)(2) = f(2) + g(2) = 3 + 2 = 5 \quad (f-g)(2) = 3 - 2 = 1 \Rightarrow 5/1 = 5$$

$$ج) f(0)g(-1) = 0 \cdot 1 = 0$$

$$f(n) = \{(2, 1), (-1, 4), (0, 5), (-2, 2), (3, -1)\}$$

$$الف) g(n) = f(n-1)$$

$$n = -2 \Rightarrow a = -\frac{1}{2} \left(-\frac{1}{2}, 4 \right) \quad n = 2 \Rightarrow a = 1 \Rightarrow (1, 1) \quad a = -1 \Rightarrow n = 0 \Rightarrow (0, 5) \quad a = 0 \Rightarrow n = \frac{1}{2} \Rightarrow \left(\frac{1}{2}, 5 \right)$$

$$\Rightarrow g = \{(1, 1), (0, 5), \left(\frac{1}{2}, 5 \right), \left(-\frac{1}{2}, 4 \right), \left(\frac{3}{2}, -1 \right)\}$$

$$ب) h(n) = f(|n|)$$

$$f(1) = 2 \quad f(2) = 3 \quad f(3) = 1$$

$$h(1) = 2 \quad h(2) = 3 \quad h(3) = 1 \quad \Rightarrow h(n) = \{(-2, 2), (-1, 4), (0, 5), (2, 1), (3, -1)\}$$

