

$$x > 0 \Rightarrow 2x - 1 - x + 1 \geq 0$$

$$x \geq 0$$

$$x < 0 \Rightarrow 4x^3 - x + 1 \geq 0 \quad \left. \begin{array}{l} x > 0 \\ x \geq \frac{1}{4} \end{array} \right\} x \geq -\frac{1}{4} \checkmark$$

$$3x \geq -4$$

$$(x+1)^3 \quad x \geq -\frac{4}{3} \checkmark$$

$$\frac{3(12x^3 + 12x^2 + 4x + 1)}{(4x^2 + 4x + 1)^2} = \frac{3((4x^2 + 4x + 1) + (12x^3 + 12x^2 + 4x))}{(4x^2 + 4x + 1)^2} \quad y = \frac{3}{2x+1}$$

ساده کردن و استفاده از روش
یعنی ضلع مشترک نداشتن

$$\frac{(3+2x)(4x^2+4x+1)}{(4x^2+4x+1)^2} = \frac{3+2x}{(1+2x)^2} \quad x \in \mathbb{R} - \left\{-\frac{1}{2}\right\} \checkmark$$

$$\frac{(x^2-1)(x+2)}{-x^2-1} = x+C \Rightarrow C=2 \quad C+b=2+\frac{1}{2}=\frac{5}{2} \checkmark$$

$$g(1) = 1+2=3$$

$$\frac{a+2}{1+b} = 3 \quad \frac{2-a}{b-1} = 1 \Rightarrow \begin{array}{l} a+2=3+3b \\ 2-a=-b+1 \end{array}$$

$$b = \frac{1}{4} \quad a = \frac{11}{4} \checkmark$$

برای اینکه دامنه عوض نشود (چون صورت و مخرج
ضرب در $x+1$ شده) $C=1 \checkmark$

$$(x-2)(x-1) = x^2 - (C+1)x + C$$

$$x^2 - 2x + 1$$

$$a=-2 \quad b=1$$

$$1 + (-2) + 1 = 0 \checkmark$$

$$F(x+1) = (x-2)^2(x) = x^3 - 4x^2 + 4x$$

$$F(1-x) = (-x-2)^2(1-x) = -(x^3 + 4x^2 + 4x)$$

$$g(x) = \underline{x^3} - \underline{4x^2} + \underline{4x} - \underline{x^3} - \underline{4x^2} - \underline{4x} = -8x^2 \checkmark$$

$$1 - 2x = -1 \quad x = 1 \quad f(-1) = \sqrt{1} = 1 \checkmark$$

$$1 - 2x = 3 \quad x = -1 \quad f(3) = \sqrt{3-1} + 2 = 2 \checkmark \quad \underline{f+1=2} \checkmark$$

$$x + \sqrt{x} = 4 \quad x = 4$$

$$f + v(f) = 2(4) + 12 = 20 \checkmark$$

↓
 إذا $x - 4 = -\sqrt{x}$
 $x^2 - 12x + 16 = 0 \Rightarrow x = 4, 9 \checkmark$

$$x - 1 = t$$

$$f(t) + f(-t) = t^2 + t + (-t^2) + (-t) = 0 \checkmark$$

$$x=1 \Rightarrow b - f x = 0 \quad b = f \checkmark$$

$$\Rightarrow f x - f a = 0 \quad a = \frac{f}{f} \checkmark$$

$$f f(1) - g(1) = f k - f k = -k - f = k \quad k = -1 \checkmark$$

$$v\left(\frac{f}{f}\right) - \frac{f}{f} - (-1) = 1 \checkmark$$

$$D f(x) \Rightarrow \text{المشتق} \Rightarrow m = x \checkmark$$

$$D g(x) \Rightarrow \text{المشتق} \Rightarrow -1 = x$$

$$m+n = 4\sqrt{2} \checkmark$$

$$f - g(x) = -\sqrt{4+x} + \sqrt{4-x} + n = 4\sqrt{2} \checkmark$$

$$n = 4\sqrt{2} \checkmark$$