

$$f(-1) \Rightarrow 1 - 1x + 1 \rightarrow x + 1 \rightarrow f(-1) = 1$$

$$f(x) \Rightarrow 1 - 1x + x \rightarrow x + 1 \rightarrow f(x) = 1$$

$$f(-1) + f(x) = 2$$

$$x + \sqrt{x} = t \rightarrow x = t^2 \rightarrow f(t) = t^2 + t^2\sqrt{t} = t^2(1 + \sqrt{t})$$

$$f(x-1) = (x-1)^{p+1} = x^p - px^{p-1} + \dots + (-1)^{p+1}$$

$$f(1-x) = (1-x)^{p+1} = 1 - px^p + \dots + (-1)^{p+1}$$

$$f(x-1) + f(1-x) = 0$$

Simple

$$D_{11} - g \cdot D_f \cdot D_g \Rightarrow D_f \cdot g \cdot [1]$$

$$D_f : \{x \in \mathbb{R}^n \mid x \geq 0\} \rightarrow \{x \in \mathbb{R}^n \mid x \geq \frac{1}{\epsilon} \frac{1}{\epsilon}\} \rightarrow D_f : \left[\frac{1}{\epsilon}, +\infty \right)$$

$$D_g : b - \{x \in \mathbb{R}^n \mid x \geq 0\} \rightarrow \frac{b}{\epsilon} \geq x \rightarrow D_g : (-\infty, \frac{b}{\epsilon}]$$

$$-\frac{1}{\epsilon} \frac{1}{\epsilon} \geq 1 \rightarrow a \geq \frac{1}{\epsilon} \rightarrow \frac{b}{\epsilon} \geq 1 \rightarrow b \geq \epsilon \quad f(1) \geq K-1 \quad g(1) \geq K$$

$$f(1) - g(1) \geq K - 1 - K \geq K \rightarrow K \geq -1 \rightarrow K \geq -1$$

$$K - \frac{b}{\epsilon} - K \geq \epsilon - 1 - (-1) \geq \epsilon$$

$$D_{g \circ f} = D_g \cdot D_f \rightarrow D_f : m - x \geq 0 \rightarrow m \geq x \rightarrow D_f : (-\infty, m]$$

$$D_g : x + x \geq 0 \rightarrow x \geq -1 \rightarrow D_g : [-1, +\infty) \rightarrow D_{g \circ f} : [-1, m] \rightarrow m \geq 1$$

$$f(x) - g(x) = x\sqrt{x} \rightarrow \sqrt{m-x} + n - \sqrt{4x} \geq 4\sqrt{x}$$

$$x + n - \sqrt{x} \geq 4\sqrt{x} \rightarrow n \geq 4\sqrt{x} + \sqrt{x} - x$$

$$m + n \geq 4\sqrt{x} + \sqrt{x} - x + x \rightarrow m + n \geq 4\sqrt{x} + \sqrt{x}$$

$$\begin{aligned}
 0 \cap \{x\} &\rightarrow [x] \supset \mathbb{R} \rightarrow \sqrt{1x-1-x+1} \rightarrow f(x) = \sqrt{x} \rightarrow x \geq 0 \cap [x] \supset \mathbb{R} \\
 x \geq 0 \cap [x] \supset \mathbb{R} &\rightarrow D_f(x) : [0, +\infty) \\
 f(x) &\rightarrow [x] \leq \mathbb{R} \rightarrow \sqrt{1x+1-x+1} \rightarrow \sqrt{1x+1} \rightarrow 1x+1 \geq 0 \rightarrow x \geq -\frac{1}{2} \\
 x \geq -\frac{1}{2} \cap [x] \leq \mathbb{R} &\rightarrow D_f(x) : [-\frac{1}{2}, +\infty) \\
 [-\frac{1}{2}, +\infty) \cup [0, +\infty) &\rightarrow D_f : [-\frac{1}{2}, +\infty)
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{D} \quad 1 \in x^p + 14x^{\frac{p}{2}}(14x+1) &= (14x+1)(14x+1)x^{\frac{p}{2}} \left\{ y, \frac{14}{14x+1} \right\} \\
 (14x^{\frac{p}{2}} + 14x+1)^{\frac{p}{2}} &= (14x+1)^{\frac{p}{2}}
 \end{aligned}$$

$D_y : \mathbb{R} \cdot \{-\frac{1}{2}\}$

(سوال 1)

$$\begin{aligned}
 \textcircled{M} \quad f(x) &= \frac{(x+1)(x-1)}{(x^2-1)} \rightarrow f(x) = x+1 = g(x) = x+C \rightarrow C = 1 \\
 f(1) = g(1) &\rightarrow \frac{1+1}{1+1} = 1 \rightarrow a+1 = 1+b
 \end{aligned}$$

$$\begin{aligned}
 f(-1) = g(-1) &\rightarrow \frac{-1+1}{-1+1} = 1 \rightarrow -1+b = -1+b \rightarrow a = 1+b \\
 14b+14+14b &\rightarrow 14 = 28b \rightarrow b = \frac{1}{2} \rightarrow b+C = \frac{1}{2}+1 = \frac{3}{2}
 \end{aligned}$$

$$\textcircled{E} \quad \frac{x+1}{x-C} = \frac{x^p-1}{x^p+a+1} \rightarrow x^p+a+1 = (x-C)(x-1) \rightarrow x^p+a+1 = x^p - (C+1)x + C$$

$a = -(C+1) \quad b = C$

$$a+b+C = 0 \quad \begin{cases} a = -1 & b = 1 & C = 1 \\ a = 1 & b = -1 & C = 1 \end{cases} \Rightarrow \text{لا يوجد جواب}$$

$$\begin{aligned}
 \textcircled{D} \quad f(x+1) &= ((x+1)-1)^p ((x+1)-1) = (x^p - 14x^{\frac{p}{2}} + 14x) \\
 f(1-x) &= ((1-x)-1)^p ((1-x)-1) = -x^p - 14x^{\frac{p}{2}} - 14x \\
 f(x+1) + f(1-x) &= x^p - 14x^{\frac{p}{2}} - 14x - x^p - 14x^{\frac{p}{2}} - 14x = -28x
 \end{aligned}$$