

مسألة 1: إيجاد

المجال (Df)

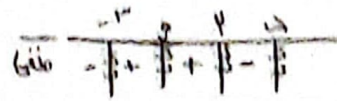
$$x \cdot f(x) \text{ لـ } x \in \mathbb{R}$$



$$D_f = (-2, 1) \cup (1, 2)$$

$$\frac{-x}{f(x)}$$

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



$$D_f = (-2, 1) \cup (1, 2)$$

$$f(1) - 2f(1) = 1 - 2 + 1 = 0 \rightarrow f(1) = 1 \quad f(-2) \cdot f(1) = (-2)^2 - 2(-2) + 1 = 9$$

$$f(-2) = -4 + 1 + 1 = -2$$

$$f(1) = 1 + 1 = 2 \rightarrow f(2) = 2 \cdot \sqrt{1+1} = 2 \quad \left. \begin{array}{l} f(2) = 2 \\ f(1) = 1 \end{array} \right\} \begin{array}{l} U+V=9 \\ U+V=9 \end{array}$$

$$f(2) = 2 \rightarrow f(1) = 1 + 1 = 2$$

$$f(x-1) = a(x-1)^2 - b(x-1) + 1 = a(x^2 + 1 - 2x) - b(x-1) + 1 = ax^2 + a - 2ax - bx + b + 1$$

$$ax + a - 2ax = bx + b + 1 - ax^2 + bx = 9x + 1$$

$$a - 2ax + b = 9x + 1$$

$$-2a = 9 \quad a = -\frac{9}{2}$$

$$-9 + b = 1 \rightarrow b = 10$$

$$a - b = -\frac{9}{2} - 10 = -\frac{29}{2}$$

$$f(x) = \frac{(x+2)^2 + 1}{(x+2)^2 + 3}$$

$$f(\sqrt{3}-2) = \frac{(\sqrt{3})^2 + 1}{(\sqrt{3})^2 + 3} = \frac{4}{6} = \frac{2}{3}$$

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

$$(x - \frac{1}{x})^2 + 2 \rightarrow f(x) = a^2 + 2 = 11$$

$$f(-3) = (-3)^2 + 2 = 11$$

$$\text{الف) } \frac{f}{g} = \left\{ (0, \frac{1}{3}), (1, \frac{-1}{\sqrt{2}}), (2, \frac{0}{\sqrt{2}}) \right\} = \left\{ (0, \frac{1}{3}), (1, \frac{-1}{\sqrt{2}}), (2, 0) \right\}$$

$$\text{ب) } \frac{f}{g} = \left\{ (0, \frac{1}{3}), (1, \frac{\sqrt{2}}{-1}) \right\}$$

الف $\{ (2, 2), (3, 8), (-5, 4), (1, -4) \}$

ب $\{ (2, 2), (3, 5), (-5, 3), (1, -1) \}$

ج $\{ (2, 4), (3, 49), (-5, 13), (1, 13) \}$

د $\{ (1, 1), (\frac{3}{4}, 4), (-\frac{5}{4}, 2), (\frac{1}{4}, -2) \}$

الف $F-g = \{ (2, 2), (1, 4), (3, 2) \}$

ب $\frac{2F}{9} = \{ (2, 2), (1, \frac{1}{9}), (3, -2) \}$
 تعريف للنسبة