

الف) $\sqrt{m|m|} \rightarrow g(m) = m^{1/2}$ $m|m| \geq 0$ $\begin{matrix} \oplus \\ \otimes \end{matrix}$ $Df = [0, +\infty) \neq Dg = \mathbb{R}$ α

ب) $m^2 + 5m + 7 \Rightarrow \Delta < 0$ $\frac{1}{\mathbb{R}} = \frac{1}{\mathbb{R}}$ $\checkmark$

ج) $Dg = \mathbb{R}, Df = \mathbb{R} \rightarrow r \sin m - 2 \neq 0$ $\sin m \neq \frac{2}{r} \Rightarrow \mathbb{R}$ $\frac{r \sin m (r \sin m - 2)}{r \sin m - 2}$ $\checkmark$

د) $\frac{m}{|m|}, \frac{|m|}{m} \Rightarrow |m| \neq 0, m \neq 0$ $Df = Dg$ $\checkmark$ $Df, Dg = \mathbb{R} - \{0\}$

ه) الف) $f(m) = \left[\frac{m^2}{m^2+1} \right], g(m) = [m - [m]]$ $\Rightarrow Df = Dg$ $\checkmark$

ب) $f(m) = \frac{1}{[m]}, g(m) = \frac{1}{r[m]}$ $r[m] \neq 0 \Rightarrow [m] \neq 0 \Rightarrow Dg = \mathbb{R} - \{0\}$ $[m] \neq 0 \Rightarrow Df = \mathbb{R} - \{0, \frac{1}{r}\}$ $\checkmark$ $Df \neq Dg$

ج) $\sqrt{m-1} \geq 0, \sqrt{|m|-m} \geq 0$ $m \geq 1, |m| \geq m$ α $Df \neq Dg$ α

د) $\frac{m^2-m}{m-1} = \frac{m(m-1)}{m-1} = m$ $\Rightarrow \frac{1}{1} = \frac{1}{1}$ $m^2 + a = m(m+1)$ $Df = Dg$ $\checkmark$

ه) $(a+b)(a-b) = a^2 - b^2$

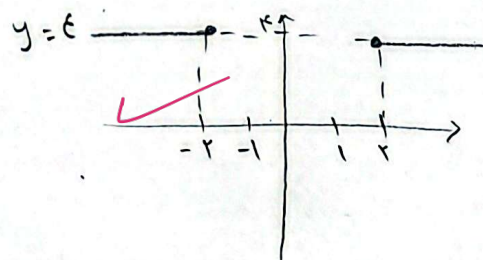
$f^2(m) - g^2(m) = (m^2+m+1)(m^2-m+1) = m^4 + m^2 + m^2 - m^2 - m^2 - m + m^2 + m + 1$

$= m^4 + m^2 + 1$ $f(m) - g(m) = m^2 - m + 1$ $f(m) + g(m) = m^2 + m + 1$

$r f(m) = r m^2 + r$ $f(m) = m^2 + 1 \Rightarrow g(m) = m$

$g(m) \times f(m) \rightarrow (m + \sqrt{m^2-1})(m - \sqrt{m^2-1})$ $\Rightarrow m^2 - m^2 + 1 = 1$

$m^2 - 1 \geq 0 \rightarrow 1 \leq m^2 \Rightarrow 1 \leq m$ $m \leq -1$



$g(m) = \frac{m-b}{m^2-m-1}$ $m^2-m-1=0 \Rightarrow (m-2)(m+1)=0$ $Dg = \mathbb{R} - \{2, -1\} \xrightarrow{0} Df = Dg$

$f(m) = \frac{am+r}{(m-\frac{a}{r})(m+1)}$ $\rightarrow m^2 - \frac{1}{a}m - \frac{r}{a}$ $g(m) = f(m) \Rightarrow ram^2 - cam^2 - dam + fam^2 - am - 1$ $= m^2 - \frac{1}{a}am^2 - \frac{a}{r}a - bam^2 - \frac{1}{a}am - \frac{a}{r}b$

$am - bn = \frac{1}{r} \times \frac{r}{1} \cdot \frac{r}{1} \cdot (-\frac{1}{a} \times \frac{r}{1}) = \frac{r}{a}$ $\frac{-r}{a}$ $b = -\frac{1}{a}$ $a = \frac{1}{r}$

$$f(x) = c \xrightarrow{\text{نقطة 1}} \frac{bx+r}{ax} = c \rightarrow bx+r = c(ax+b) \rightarrow ac = b, c = \frac{b}{a}$$

$$bc = r \rightarrow b \times \frac{b}{a} = r \Rightarrow \frac{b^2}{a} = r$$

$$b^2 = 14, b = \pm \sqrt{14}$$

$$\xrightarrow{\text{نقطة 2}} \frac{ab}{c} \rightarrow \frac{-\frac{b}{a} \times b}{\frac{b}{a}} = -b \Rightarrow \boxed{+4}$$

مربع تعينه

$$f = \{(-1, 2), (2, 4), (3, -2), (0, \frac{1}{2})\} \quad \leftarrow 2f - 1$$

$$2g = \{(2, 1), (3, 1), (-1, -1), (0, 0)\} \rightarrow g = \{(2, \frac{1}{2}), (3, \frac{1}{2}), (-1, -\frac{1}{2}), (0, 0)\}$$

$$g + f = \{(-1, -2), (2, 1), (3, 4)\} \quad \frac{2g}{f+g} = \{(2, 1), (3, 2), (-1, \frac{1}{2})\}$$

$$f = \{(r, a), (-r, a-rb), (c, d), (r, d)\} \quad g = \{(r, -1), (-r, -1), (a-rb, d)\}$$

$$a = -1, \quad ra - rb = 1, \quad c = a - rb$$

$$d = -1, \quad -r - rb = 1, \quad c = -1 + 4$$

$$b = -2, \quad c = +4$$

$$d + c = -1 + 4 = 3$$

$$f(x) = g(x) \rightarrow \sqrt{-a^2 + a - m} = b$$

$$-(a^2 - a + m) \xrightarrow{\text{نقطة 1}} m = \frac{1}{x} \rightarrow \sqrt{-(a - \frac{1}{x})^2} = -|a - \frac{1}{x}| = b$$

$$\xrightarrow{\text{نقطة 2}} -a + \frac{1}{x} = b \quad a + b = \frac{1}{x}$$

$$g(x) = f(x) \xrightarrow{\text{نقطة 1}} ng = nf \Rightarrow \text{نقطة 2} \rightarrow \frac{r}{1-r} = \frac{r+a}{14}$$

$$r = 1 \quad \leftarrow \quad C = -4, \quad b = 9$$

$$4r = 1 + ra \rightarrow 4a = 4 \rightarrow a = 1$$

$$a + b + c = 12$$