

A) $\cos(x)$:

" $\frac{1}{2}$ أو $\frac{3}{2}$ " :

تساوي :

$$(a-x)x^2 + ax + b \geq 0 \rightsquigarrow \begin{array}{c} x \\ \hline - \quad + \end{array} \Rightarrow \begin{array}{l} a-x=0 \Rightarrow a=x \\ (a-x)x^2 + ax + b = x^2 + b \\ x=x \Rightarrow 4+b=0 \Rightarrow \boxed{b=-4} \end{array} \quad (1)$$

$$\text{For } \sqrt{x^2 + 2x + 1 - m^2} \rightsquigarrow D_f = \mathbb{R} \Rightarrow \Delta \leq 0 \rightarrow 1 - 4(1 - m^2) \leq 0$$

$$1 - 4 + 4m^2 \leq 0 \rightsquigarrow m^2 \leq 1 \Rightarrow -1 \leq m \leq 1$$

$$1 - (-1) = 2 \quad (2)$$

I) $1 - x^2 \geq 0 \rightarrow -1 \leq x \leq 1 \rightsquigarrow [-1, 1]$

II) $[x] + [-x] \neq -1 \rightsquigarrow x \in \mathbb{Z} \Rightarrow 0 \leq \dots \Rightarrow x \in \mathbb{Z}$

$\rightarrow \notin \mathbb{Z} \Rightarrow -1 \leq \dots$

$\rightarrow \dots$

$\rightarrow I \cap II = \{ -1, 0, 1 \} \quad (3)$

a) $x^3 + 2x^2 \geq 0 \rightsquigarrow x^2(x+2) \geq 0$

b) $\frac{x(x-1)(x+1)(x-2)}{(x-1)(x^2+x+1)} \geq 0$

$\Delta < 0$: لا تقبل

$\rightarrow D_f = (-\infty, -1] \cup [2, +\infty)$

$\cup \{0\}$

a) $|m-1| \geq 2 \rightsquigarrow m-1 \geq 2 \rightsquigarrow m \geq 3$

$\rightarrow m-1 \leq -2 \rightsquigarrow m \leq -1$

$\rightarrow D_f = (-\infty, -1] \cup [3, +\infty)$ (4)

b) $4 \geq |2-x| \rightsquigarrow -4 \leq 2-x \leq 4 \rightsquigarrow -4 \leq -x \leq 2 \rightsquigarrow 4 \geq x \geq -2$

$D_f = [-2, 4]$

a) $1 \geq x|x| \rightsquigarrow 0 \vee 1 \vee -1 \vee -\infty \vee +\infty \rightsquigarrow D_f = (-\infty, 1]$ (5)

I) $3 - |x-1| \geq 0 \rightsquigarrow 3 \geq |x-1| \rightsquigarrow -3 \leq x-1 \leq 3 \rightsquigarrow -2 \leq x \leq 4$

II) $\sqrt{2 - |x-1|} \neq 1 \rightsquigarrow 2 - |x-1| \neq 1 \rightsquigarrow 1 \neq |x-1| \rightsquigarrow x-1 = 1 \rightsquigarrow x = 2$

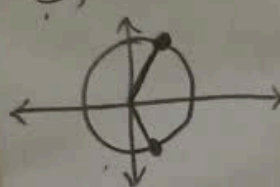
$x-1 = -1 \rightsquigarrow x = 0$

$I \cap II \rightarrow D_f = [-2, 4] - \{0, 2\}$

a) $\cos x \neq 0$

$\rightarrow D_f = \mathbb{R} - \{ k\pi + \frac{\pi}{2} \}$ (6)

ج) $\sqrt{p} \cos m - 1 \neq 0 \leadsto \cos m \neq \frac{1}{\sqrt{p}} \left\{ \Rightarrow D_f = \mathbb{R} - \left\{ \sqrt{p} \pi - \frac{\pi}{\sqrt{p}}, \sqrt{p} \pi + \frac{\pi}{\sqrt{p}} \right\} \right.$



الف) $|pm+1| \neq |m+\sqrt{p}| \xrightarrow{\text{بترتيب}} pm^2 + \varepsilon m + 1 \neq m^2 + 4m + 9$
 $pm^2 - m - 8 \neq 0 \leadsto m^2 - m - p\varepsilon \neq 0$
 $(m-4)(m+4) \neq 0 \leadsto \mathbb{R} - \left\{ \frac{4}{\sqrt{p}}, \frac{-4}{\sqrt{p}} \right\} = D_f$ ①

ج) $|pm+1| - |m+\sqrt{p}| \geq 0$

$pm^2 + \varepsilon m + 1 \geq m^2 + 4m + 9$

$pm^2 - m - 8 \geq 0 \leadsto \frac{m}{+1} \frac{m}{-1} \frac{1}{+} \leadsto D_f = (-\infty, -\frac{8}{p}] \cup [1, +\infty)$

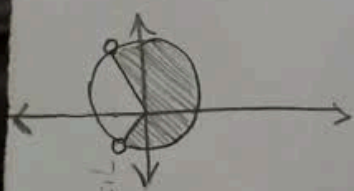
I) $pm - 1 > 0 \leadsto m > \frac{1}{p}$

II) $\log_{\omega}^{pm-1} > 0 \leadsto pm-1 > 1 \leadsto m > 1$

III) $\log_{\omega}^{\log_{\omega}^{pm-1}} \geq 0 \leadsto \log_{\omega}^{pm-1} \leq 1 \leadsto pm-1 \leq \omega \leadsto pm \leq 4 \leadsto m \leq \frac{4}{p}$

$\underline{I \cap II \cap III} \Rightarrow D_f = (1, \frac{4}{p}]$

الف) $\sqrt{p} \cos m + 1 > 0 \leadsto \cos m > -\frac{1}{\sqrt{p}}$



$\leadsto D_f = (\sqrt{p} \pi - \frac{\pi}{\sqrt{p}}, \sqrt{p} \pi + \frac{\pi}{\sqrt{p}})$

ج) I) $\frac{m-1}{m+1} > 0 \leadsto \frac{m-1}{+1} \frac{m+1}{-1} \leadsto (-\infty, -1) \cup (1, +\infty)$

II) $\log \frac{m-1}{m+1} \geq 0 \leadsto \frac{m-1}{m+1} \geq 1 \leadsto \frac{m-1}{m+1} - 1 \geq 0 \leadsto \frac{m-1-m-1}{m+1} \geq 0$

$\frac{-p}{m+1} \geq 0 \leadsto \frac{-1}{+1} \frac{m+1}{-1} \leadsto (-\infty, -1)$

$\underline{I \cap II} \Rightarrow D_f = (-\infty, -1)$