

$$f(x) = \sqrt{\frac{\log_{10}(2x-1)}{\log_{10} 5}}$$

$$2x-1 > 0 \Rightarrow x > \frac{1}{2}$$

$$\log_{10}(2x-1) > 0 \Rightarrow 2x-1 > 1 \Rightarrow x > 1$$

$$D_f = (1, +\infty)$$

$$الف) y = \log(2\cos x + 1)$$

$$2\cos x + 1 > 0 \Rightarrow \cos x > -\frac{1}{2}$$

$$D_f = (2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3})$$

$$ب) y = \sqrt{\log \frac{x-1}{x+1}}$$

$$\frac{x-1}{x+1} > 0 \quad \frac{-1}{+} \frac{+}{-}$$

$$D_f = (-\infty, -1) \cup (1, +\infty)$$

$$f(x) = \sqrt{(a+2)x^2 + ax + b} \quad (-\infty, 2] \text{ حيث } b=?$$

$$ax^2 + 2x^2 + ax + b = 0 \quad \text{بما أن } x=2 \text{ جذر}$$

$$x(ax+2+a) = -b$$

$$-2x = -b \Rightarrow b = 2x \quad \text{إذا } x=2 \Rightarrow b=4$$

$$f(x) = \sqrt{x^2 + 2x + 2 - m^2}$$

$$x = -\frac{b}{2a} = -1$$

$$-\frac{b}{2a} \text{ جذر معكاف } x^2 + 2x + 2 - m^2 = 0$$

$$\sqrt{1-m^2} = 1-m^2 \geq 0 \Rightarrow (1-m)(1+m) \geq 0$$

$$\begin{matrix} \text{مستقيمات} \\ \text{مقطع} \\ \text{مقطع} \\ \text{مقطع} \end{matrix}$$

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

$$f(x) = \frac{\sqrt{4-x^2}}{[x] + [-x] + 1}$$

$$4-x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow -2 \leq x \leq 2$$

$$D_f = [-2, 2] \text{ I}$$

$$[x] + [-x] + 1 \Rightarrow D_f = \mathbb{Z} \text{ II}$$

$$x \in \mathbb{Z}$$

$$I \cap II = [-2, 2]$$

$$\text{مقطع مع } \leq$$