

$$f(x) = \sqrt{(a-r)x^2 + ax + b}$$

$$f'(x) \rightarrow r \Rightarrow f(r) = 0$$



$$(a-r)r + ra + b = 0$$

$$ra + b - 11 = 0$$

$$\Rightarrow b = 11 - \frac{14r}{v}$$

$$-\frac{b}{ra} = r \Rightarrow \frac{-a}{ra-r} = r \Rightarrow a = \frac{12}{v}$$

$$b = -\frac{11}{v}$$

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

$$L, \text{ شرط } = 1 \Rightarrow x = 0$$

$$1 - m^2 \geq 0$$

$$\begin{cases} m = -1 \\ m = 1 \end{cases}$$

2

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



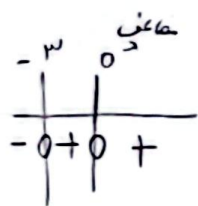
$$D = [-2, 2]$$

3

$$\begin{cases} x \in \mathbb{Z} \rightarrow \text{مخرج} = 1 \\ [x] + [-x] = 0 \end{cases}$$

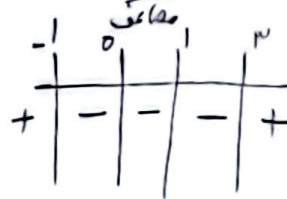
اعداد 2، 0 و -2

$$الف) y = \sqrt{x^3 + 3x^2} \Rightarrow \sqrt{x^2(x+3)}$$



$$D = [-3, +\infty)$$

$$ب) \sqrt{\frac{(x^2-1)(x^3-3x^2)}{x^3-1}} \Rightarrow \sqrt{\frac{x^2(x-1)}{x^2(x-1)}} \Rightarrow \sqrt{1} = 1$$



4

$$الف) y = \sqrt{|x-2| - 3}$$

$$|x-2| - 3 \geq 0$$

$$|x-2| \geq 3$$

$$x-2 \geq 3 \Rightarrow x \geq 5$$

$$x-2 \leq -3 \Rightarrow x \leq -1$$

$$D_f = (-\infty, -1] \cup [5, +\infty)$$

$$ب) \sqrt{4 - |2-x|}$$

$$|2-x| \leq 4$$

$$-4 \leq 2-x \leq 4$$

$$-2 \leq x \leq 6$$

5

الف) $\sqrt{1-x|x|}$

$\hookrightarrow x|x| \leq 1$

$\hookrightarrow \begin{cases} x < 0 \\ x > 0 \end{cases} \begin{cases} x|x| = - \\ x|x| = + \end{cases} \Rightarrow D_f = (-\infty, 1]$

ب) $\frac{1}{\sqrt{r^2 - |x-\alpha| - 1}}$

$r^2 - |x-\alpha| \geq 0$

$|x-\alpha| \leq r^2$

$r \leq x \leq 1$

$|x-\alpha| = r^2$

$x-\alpha = r^2 \rightarrow x = \alpha + r^2$

$x-\alpha = -r^2 \rightarrow x = \alpha - r^2$

$D = [r, 1] - \{r, \alpha\}$

الف) $y = \frac{\sin^r x - 1}{\cos x}$

$\cos x \neq 0$

$D = \mathbb{R} - \left\{ \frac{k\pi}{r} + k\pi \right\}$

ب) $\frac{\sin^r x - 1}{r \cos x - 1}$

$\cos x \neq \frac{1}{r}$

$\mathbb{R} - \left\{ r k \pi \pm \frac{\pi}{r} \right\}$

الف) $y = \frac{x+r}{|rx+1| - |x+r|}$

$rx+1 = x+r \rightarrow x=r$

$rx+1 = -x-r \rightarrow x = -\frac{r}{r}$

$\mathbb{R} - \left\{ -\frac{r}{r}, r \right\}$

ب) $|rx+1| \geq |x+r|$

$rx^2 + rx + 1 \geq x^2 + rx + r$

$rx^2 - rx - 1 \geq 0$

$(rx+1)(x-r) \geq 0$

$\downarrow \quad \downarrow$

$x = -\frac{r}{r} \quad x = r$

$\begin{array}{c|c|c} -\frac{r}{r} & & r \\ \hline + & - & + \end{array}$

$f(x) = \sqrt{\log_{\alpha} \log_{\alpha} (rx-1)}$

$\log_{\alpha} \log_{\alpha} (rx-1) \geq 0$

$0 \leq \log_{\alpha} (rx-1) \leq 1$

$rx-1 \leq \alpha^1$

$x \leq r$

$D_f = (1, r]$

الف) $\log(r \cos x + 1)$

$r \cos x + 1 > 0$

$\cos x > -\frac{1}{r}$

$D_f = \left[rk\pi - \frac{k\pi}{r}, rk\pi + \frac{k\pi}{r} \right]$

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

$\frac{x-1}{x+1} \geq 1$

$\frac{x-1-x-1}{x+1} \geq 0 \rightarrow \frac{-2}{x+1} \geq 0$

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