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سایه استانی - یازدهم ریاضی - شماره تفهیم 3

$$1) y = \frac{x+r}{2x^3+3x^2-11x+r} = \frac{(x+r)}{(2x^2+2x-3)(x-1)} \quad (5) \quad (1)$$

$$\begin{array}{l} \frac{2x^3+3x^2-11x+r}{-2x^3+2x^2} \quad | \quad x-1 \\ \hline 5x^2-11x+r \\ -5x^2+5x-5 \\ \hline -6x+r+5 \\ -6x+6 \\ \hline r-1 \end{array} \quad \frac{2x^2+2x-3}{2x^2+2x-3} \quad | \quad x-1$$

$$\Delta = 12 - 4(-3)(-1) = 12$$

$$x = \frac{-2 \pm \sqrt{12}}{2} = -1, 1$$

$$Df = 1R - \left\{ 1, -3, \frac{1}{2} \right\}$$

$$2) y = \frac{x+r}{2x^3+9x^2+10x+r} = \frac{x+r}{(2x^2+7x+3)(x+1)} \quad (5) \quad (2)$$

$$\begin{array}{l} \frac{2x^3+9x^2+10x+r}{-2x^3-2x^2} \quad | \quad x+1 \\ \hline 11x^2+10x+r \\ -11x^2-11x-11 \\ \hline 21x+r-11 \\ -21x-21 \\ \hline r-11 \end{array} \quad \frac{2x^2+7x+3}{2x^2+7x+3} \quad | \quad x+1$$

$$\Delta = 49 - 4(3)(2) = 25$$

$$x = \frac{-7 \pm \sqrt{25}}{2} = -2, -\frac{1}{2}$$

$$Df = 1R - \left\{ -1, -3, -\frac{1}{2} \right\}$$

$$3) y = \frac{x+r}{x^3-2x^2+2x-1} = \frac{(x+r)}{(x^2-2x+1)(x-1)} \quad (5) \quad (3)$$

$$\begin{array}{l} \frac{x^3-2x^2+2x-1}{-x^3+2x^2} \quad | \quad x-1 \\ \hline 3x-1 \\ -3x+3 \\ \hline 2 \\ -2+2 \\ \hline 0 \end{array} \quad \frac{x^2-2x+1}{x^2-2x+1} \quad | \quad x-1$$

$$Df = 1R - \{ 1 \}$$

$$ب) y = \sqrt{\frac{x+k}{x^2-2x^2+2x-1}}$$

$$\frac{x+k}{x^2-2x^2+2x-1} \geq 0 \quad \xrightarrow{-x^2 = -x^2}$$

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

$$-x^2+1 \rightarrow Df = (-\infty, -1] \cup (1, +\infty)$$

$$y = \frac{k}{x^2-\omega|x-1|-2x+\omega}$$

$$\text{الدرجة صفر} \rightarrow x^2-\omega x+\omega-2x+\omega \rightarrow x^2-7x+10=0 \rightarrow (x-2)(x-5)=0$$

$$\text{الدرجة واحد} \rightarrow x^2+\omega x-\omega-2x+\omega \rightarrow x^2+kx=0 \rightarrow x(x+k)=0$$

$$\text{الدرجة صفر} \rightarrow x^2-2x+\omega=0 \rightarrow \Delta = 4-4(\omega)(1) = -4$$

$$Df = R - \{0, -2, 2, \omega\}$$

$$ا) \frac{x+k}{|2x+1|-|x+k|} \quad |2x+1| \neq |x+k| \xrightarrow{\text{مربع الطرفين}} 4x^2+4x+1 \neq x^2+2x+k \quad (5)$$

$$3x^2-2x-1 \neq 0 \rightarrow x^2-2x-1 \neq 0$$

$$(x-4)(x+1) \neq 0$$

$$Df = R - \left\{2, -\frac{k}{3}\right\}$$

$$x \neq 2, -\frac{k}{3}$$

$$ب) y = \sqrt{|2x+1|-|x+k|}$$

$$|2x+1|-|x+k| \geq 0 \rightarrow |2x+1| \geq |x+k|$$

$$\text{مربع الطرفين} \rightarrow 4x^2+4x+1 \geq x^2+2x+k$$

$$3x^2-2x-1 \geq 0$$

$$\frac{-k}{3} \quad 2$$

Subo

$$Df = (-\infty, \frac{-k}{3}] \cup [2, +\infty)$$

$$\text{الف) } y = \log_r (1 - \log_r^n)$$

5) 5

$$(I) \quad x > 0$$

$$(II) \rightarrow 1 - \log_r^n > 0 \rightarrow \log_r^n < 1 \rightarrow \boxed{x < r}$$

$$Df = I \cap II = (0, r)$$

$$\text{ب) } y = \log_r (1 - \log_{\frac{1}{r}}^n)$$

$$(I) \quad x > 0$$

$$(II) \rightarrow 1 - \log_{\frac{1}{r}}^n > 0 \rightarrow \log_{\frac{1}{r}}^n < 1 \rightarrow \boxed{x > \frac{1}{r}}$$

$$Df = (\frac{1}{r}, +\infty)$$

$$f(x) = \sqrt{\log_{\frac{1}{\Delta}} \log_{\Delta}^{(rx-1)}}$$

5) 4

$$(I) \quad rx - 1 > 0 \rightarrow rx > 1 \rightarrow \boxed{x > \frac{1}{r}}$$

$$(II) \quad \log_{\Delta}^{rx-1} > 0 \rightarrow rx - 1 > 1 \rightarrow rx > 2 \rightarrow \boxed{x > 1}$$

$$(III) \rightarrow \log_{\frac{1}{\Delta}} \log_{\Delta}^{rx-1} \geq 0 \rightarrow \log_{\Delta}^{rx-1} \leq 1 \rightarrow rx - 1 \leq \Delta \rightarrow \boxed{x \leq r}$$

$$(III) \cap (I) \cap (II) = Df = (1, r]$$

$$\text{الف) } y = \log(r \cos x + 1)$$

5) 5

$$r \cos x + 1 > 0$$

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



$$Df = (kr\pi - \frac{r\pi}{r}, kr\pi + \frac{r\pi}{r})$$

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

$$\frac{x-1}{x+1} > 0 \rightarrow \frac{-1+1}{+0 \pm -0 \pm} \quad (I) \rightarrow (-\infty, -1) \cup (1, +\infty)$$

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

$$(II) \rightarrow (-\infty, -1)$$

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

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

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$$f(x) = \sqrt{(a+r)x^2 + ax + b} \quad (-\infty, r] \rightarrow \text{مربع كامل} \quad (5) \quad (1)$$

$$\begin{array}{c} r \\ + \quad - \\ \hline \end{array} \rightarrow \text{مربع كامل} \rightarrow a+r=0 \rightarrow \boxed{a=-r}$$

$$f(x) = \sqrt{-rx + b} \rightarrow -r(r) + b = 0 \rightarrow \boxed{b=r^2}$$

$$f(x) = \sqrt{x^2 + rx + r - m^2} \quad (5) \quad (4)$$

$$\underbrace{x^2 + rx + r - m^2}_{\geq 0} \quad a > 0, \Delta = 0$$

$$b^2 - 4ac = 0 \rightarrow r - r(r - m^2)(1) = 0$$

$$r - r + rm^2 = 0 \rightarrow rm^2 = r$$

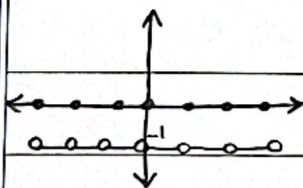
$$m_{\text{مميز}} \rightarrow +1 - (-1) = 2 \quad m^2 = 1 \rightarrow \boxed{m = \pm 1}$$

$$f(x) = \sqrt{r - x^2} \quad r - x^2 \geq 0 \quad x^2 \leq r \quad (5) \quad (10)$$

$$[x] + [-x] + 1$$

$$(I) \leftarrow \boxed{-r \leq x \leq r}$$

$$[x] + [-x] \neq -1 \rightarrow (II) \rightarrow \mathbb{Z}$$



$$Df = (I) \cap (II) \rightarrow -r \leq x \leq r \rightarrow \{ -r, -r+1, \dots, r-1, r \}$$