

الفصل : دهم دخیلج A

نوع و نام : خلاصه

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41,70

$$x_2 = x \rightarrow x = x$$

$$\text{الف) } y = x + |x - 1|$$

$$x > 1 \rightarrow x + x - 1 = 2x - 1$$

$$x = 1 \rightarrow x$$

$$\text{ب) } y = |x - 1| + |x - 1| - |x - 1|$$

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$$x > 0 \rightarrow -x + x = 0 \quad x < 0 \rightarrow x + x = 2x \quad x > 1 \rightarrow 2x - 1 \Rightarrow -2x + 1$$

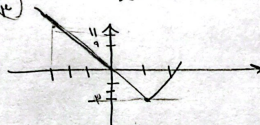
$$|x + 2| - |x - 1| = k \quad |x + 2| - |x - 1| = k \quad x = 1 \quad x = -2$$

$$|x + 2| - |x - 1| = k$$

$$|1 - (-2)| = 3$$

$$|x + 2| - |x - 1| = k$$

$$k = -3$$



$$\text{الف) } y = x + \frac{x}{|x|}$$

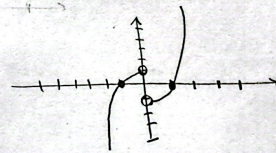
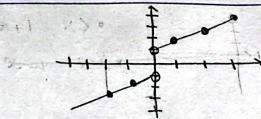
$$x > 0 \quad x < 0$$

$$x = 0 \quad x < 0$$

$$\text{ب) } y = x|x| - \frac{x}{|x|}$$

$$x > 0 \quad x < 0$$

$$-x^2 + 1 \quad x < 0$$



$$\text{الف) } y = [x] - x$$

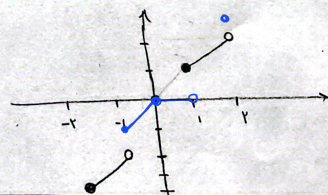
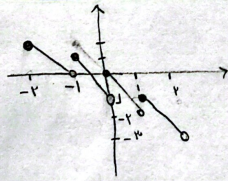
$$-1 - x$$

$$-x - x$$

$$-x - x$$

$$\text{ب) } y = [x] |x|$$

$$[1, 2] \rightarrow -x |x|$$



$$\text{الف) } y = x - [x]$$

$$R_f = [0, 1)$$

$$\text{ب) } y = x - [x] \Rightarrow f(x - [x]) \Rightarrow R_f = [0, 1)$$

$$\text{ج) } y = x - \omega \left[\frac{x}{\omega} \right] \Rightarrow \omega \left(\frac{x}{\omega} - \left[\frac{x}{\omega} \right] \right) \Rightarrow R_f = [0, \omega)$$

$$\text{د) } y = [x] - x$$

$$R_f = [-1, 0]$$

ا) $y = r \sin x + r \cos x \Rightarrow -\sqrt{9+9} \leq r \sin x + r \cos x \leq \sqrt{9+9}$

$Rf = [-\sqrt{18}, \sqrt{18}]$

ب) $y = r \sin x - r \cos x \Rightarrow -\sqrt{14+9} \leq r \sin x - r \cos x \leq \sqrt{14+9}$ $Rf = [-a, a]$

ج) $y = [r \sin x + a \cos x] \Rightarrow \frac{a}{r} \leq \sin x + \frac{a}{r} \cos x \leq 1 \Rightarrow Rf = \left\{ -\frac{a}{r}, -a, -\frac{a}{r}, -r, -\frac{a}{r}, -1, 0, 1, r, \frac{a}{r}, a \right\}$

د) $y = \sqrt{\cos x - r \sin x} \Rightarrow -\sqrt{1+r} \leq \sqrt{\cos x - r \sin x} \leq \sqrt{1+r}$

ا) $\sin^2 x + r \sin x + r \Rightarrow \sin x = -1 \Rightarrow 1 - r + r = 0$

$\sin x = 1 \Rightarrow 1 + r + r = 4$

$\sin x = \frac{-b}{ra} \Rightarrow \frac{-r}{r} \Rightarrow \frac{9}{r} - \frac{9}{r} + r \Rightarrow \frac{9 - 18 + 1}{r} = \frac{-1}{r}$

$Rf = [-\frac{1}{r}, \frac{1}{r}]$

ب) $r \sin^2 x + r \sin x + r \Rightarrow \sin x = 1 \Rightarrow r + r + r = 4$

$\sin x = -1 \Rightarrow r - r + r = 1$

$\sin x = \frac{-b}{ra} \Rightarrow \frac{-r}{r} \Rightarrow \frac{1}{r} - \frac{9}{r} + r \Rightarrow \frac{1 - 9 + r^2}{r} = \frac{r^2 - 8}{r}$

$Rf = [-r, r]$

ا) $y = \sin^2 x + r \cos^2 x \Rightarrow \sin^2 x + \cos^2 x + r \cos^2 x \Rightarrow [1, r] \Rightarrow Rf$

ب) $y = \frac{r \cos x}{1 + \cos x} \Rightarrow \frac{r \cos x}{\sin x} \times \frac{1}{\sin x} \Rightarrow r \cos x \Rightarrow [-r, r] \Rightarrow Rf$

ا) $y = \sin^4 x + \cos^4 x \Rightarrow \frac{1}{r} \leq \sin^4 x + \cos^4 x \leq 1 \Rightarrow [\frac{1}{r}, 1] \Rightarrow Rf$

$r^{1-k} \Rightarrow r^{-1} \Rightarrow \frac{1}{r}$

ب) $y = [\sin^k x + \cos^k x] \Rightarrow \frac{1}{r} \leq \sin^k x + \cos^k x \leq 1 \Rightarrow \left\{ \begin{matrix} 0 \\ 1 \end{matrix} \right\} \Rightarrow Rf = \{0, 1\}$

$r^{1-k} \Rightarrow r^{-1} \Rightarrow \frac{1}{r}$

ا) $y = \frac{r_1 x^2 + r_2 x - r}{x + c} \Rightarrow r_1 x^2 + r_2 x - r = y(x + c) \Rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a}$

$r_1 x^2 + x(V - y) + (-r - r_2 y) \Rightarrow \Delta = (V - y)^2 - 4(-r - r_2 y) \geq 0$

$r_1 x^2 + x(V - y) + (-r - r_2 y) \geq 0 \Rightarrow y^2 + 11y + 10 \geq 0 \Rightarrow (y + 1)(y + 10) \geq 0$

ب) $\frac{x^3 - 1}{x - 1} \Rightarrow Rf = (-\infty, -1] \cup [-5, +\infty)$ $x=1 \Rightarrow 1+1+1=3 \Rightarrow$

$y = \frac{(x-1)(x^2+x+1)}{x-1} \Rightarrow y = x^2 + x + 1 \Rightarrow \min \left| \frac{-1}{2} \right|$ $Rf = [\frac{3}{4}, +\infty)$

ا) $\frac{(x-f)(x-1)}{(x-f)} \Rightarrow x \neq f \Rightarrow R = \mathbb{R} \setminus \{f\}$