

تاریخ: ۱۰ آذر ۱۳۹۸

مسئله ۱

الف) $\sqrt{\frac{x+1}{x+1}}$ $\rightarrow$ $\mathbb{R} = \mathbb{R} - \{-1\}$

$\sqrt{} \rightarrow [0, +\infty) - \{\sqrt{-1}\}$

ب) $y = \sqrt{\frac{x+1}{x-1}}$ $\rightarrow$ $\mathbb{R} = \mathbb{R} - \{1\}$

$\sqrt{} \rightarrow [0, +\infty)$

الف) $y = \frac{x-1}{x+1}$

$ad - bc > 0$

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ب) $y = \frac{x-1}{x+1}$

$ad - bc > 0$

الف) $y = \sin x + \frac{1}{\sin x} \rightarrow R_f = (-\infty, -1] \cup [1, +\infty)$ (10)

ب) $y = \frac{x^4+1}{x^2} = x^2 + \frac{1}{x^2} \rightarrow R_f = (-\infty, -1] \cup [1, +\infty)$

ج) $y = \frac{\sqrt[3]{x^3}+1}{\sqrt[3]{x}} = \sqrt[3]{x} + \frac{1}{\sqrt[3]{x}} \rightarrow R_f = (-\infty, -1] \cup [1, +\infty)$

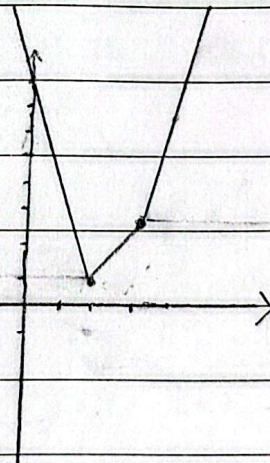
د) $y = \sqrt{x} + \frac{1}{\sqrt{x}} \rightarrow R_f = [1, +\infty)$

هـ) $y = x^{\frac{1}{2}} + \frac{1}{x^{\frac{1}{2}}} = x^{\frac{1}{2}+\epsilon} + \frac{1}{x^{\frac{1}{2}+\epsilon}} + \epsilon \rightarrow R_f = [-1, +\infty)$ (5)

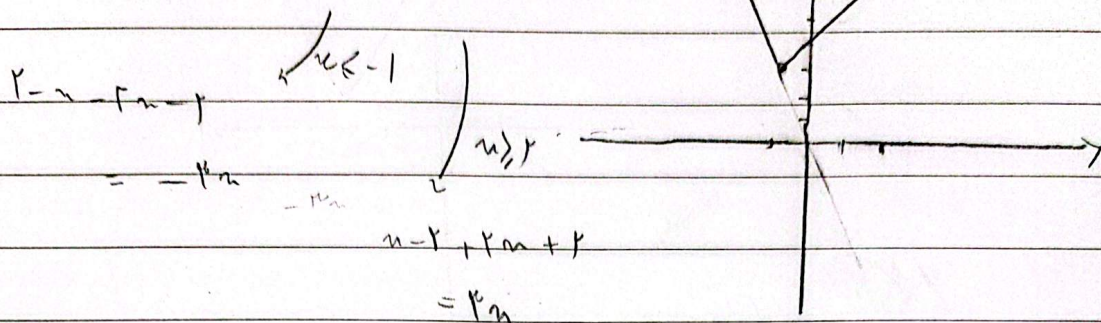
و) $y = \frac{x^{\frac{1}{2}+\epsilon}+\omega}{\sqrt{x^{\frac{1}{2}+\epsilon}}} = \sqrt{x^{\frac{1}{2}+\epsilon}} + \frac{1}{\sqrt{x^{\frac{1}{2}+\epsilon}}} \rightarrow R_f = [1, +\infty)$

$y = |x-3| + |x-4|$

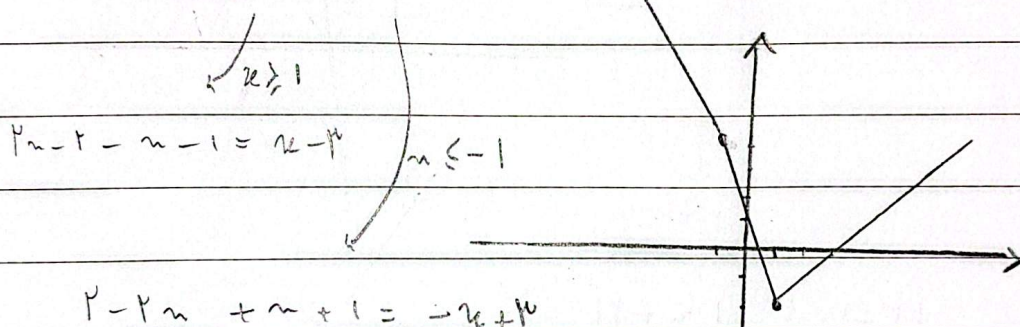
$\left. \begin{array}{l} x \leq 3 \\ 3-x+4-x = 9-2x \\ x \geq 4 \\ x-3+x-4 = 2x-7 \end{array} \right\}$



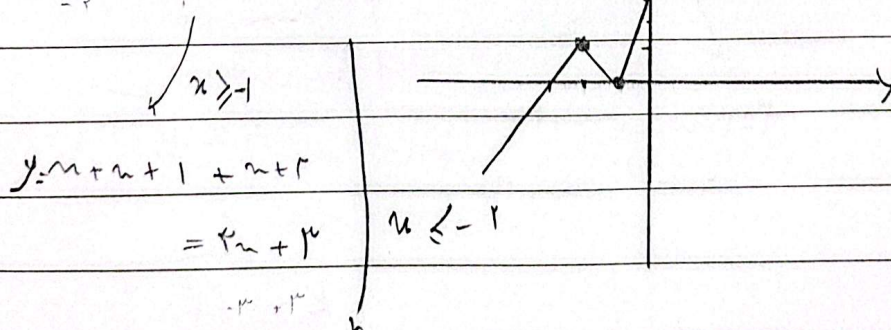
4) $y = |x-2| + |x+2|$



5) $y = |x-2| - |x+1|$

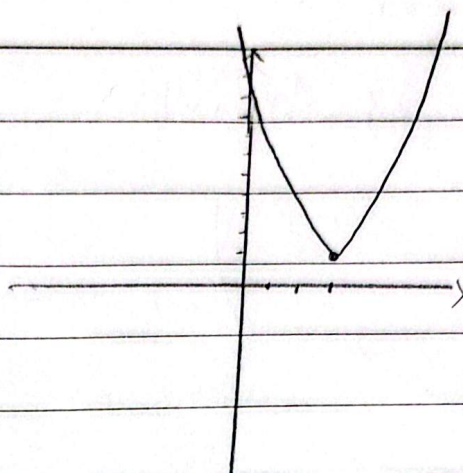


6) $y = x + |x+1| + |x+2|$



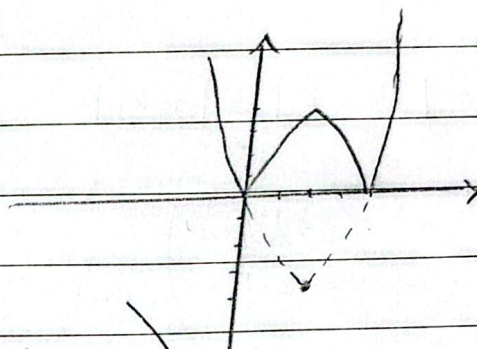
$y = x - x - 1 - x - 2 = -x - 3$

الف) $|y| = x^2 - 4x + 10$



(1)

ب) $|y| = |x^2 - 4x|$



$K = |x^2 - 4x| - |x + 2| = K$

$|x^2 - 4x| = |x(x - 4)|$
 $= |x - 4|$ (for $x \geq 4$)
 $= |x|$ (for $0 \leq x < 4$)
 $= |x + 2|$ (for $x < 0$)

$x^2 - 4x = x + 2$
 $x^2 - 5x - 2 = 0$

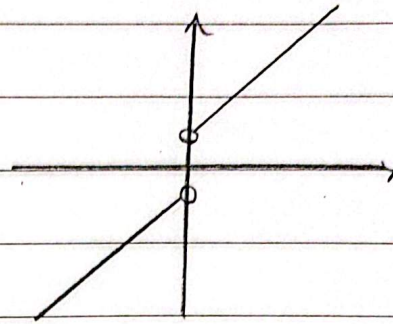
تقاطعهای دایره

در $x = 2$

$K = -4$

31) $y = x + \frac{x}{|x|}$

$y = x + 1$ for $x > 0$
 $y = x - 1$ for $x < 0$



32) $y = x|x| - \frac{x}{|x|}$

$y = x^2 - 1$ for $x > 0$
 $y = -x^2 + 1$ for $x < 0$

