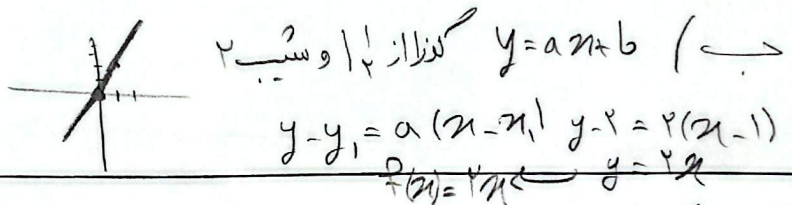
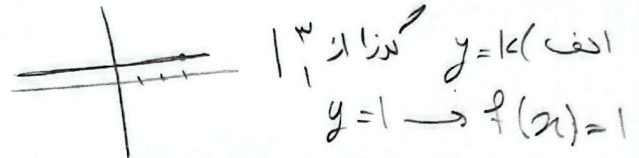


الف) $\begin{cases} y^3 - x = 2x^2 \\ y^3 - x = 2x^2 \end{cases} \xrightarrow{x=y^3} y^3 = y^3 \rightarrow y = y \checkmark$

ب) $|y| + x^2 = x + 3 \xrightarrow{x=1} |y| + 1 = 4 \quad |y| = 3 \quad y = \pm 3 \checkmark$

ج) $\sqrt{x-4} + |y-2| = 0 \quad \sqrt{x-4} = 0 \quad |y-2| = 0 \quad x=4 \quad y=2 \checkmark$

د) $x - \cos y \xrightarrow{x=0} 0 = \cos y \rightarrow y = \frac{\pi}{2}, \frac{3\pi}{2}, \dots \checkmark$



الف) $1 + 2(0) = 1 \quad a=1 \quad b=0 \quad y = ax + b \rightarrow y = x$

$-\frac{a}{2} = 2 \rightarrow a = -4$

$-\frac{a}{2}$

$-\frac{b}{2a}$

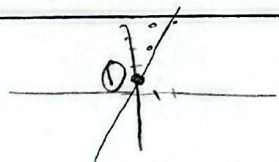
ب) $y = x^2 + ax + b$

$a + 2b = -4 + 10 = 6$

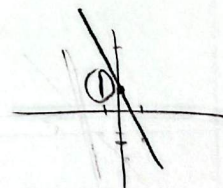
$b - 4 = 1 \quad b = 5$

$\frac{4b-12}{4} \leftarrow \frac{-(a^2-4b)}{4} \leftarrow \frac{-b}{4a}$

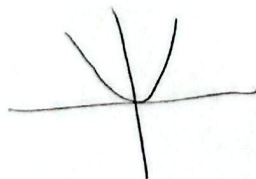
الف) $y = 2x + 1$



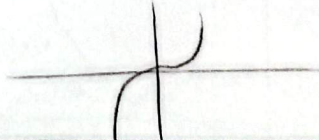
ب) $y = -3x + 1$



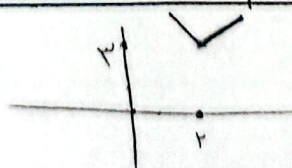
ج) $y = x^2$



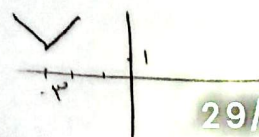
د) $y = x^3$



الف) $y = |x-2| + 3$



ب) $y = -|x+3| + 1$



$$1) y = \frac{x+4}{x^2-4x} \quad x^2-4x = x(x-4) \neq 0$$

$$R = \{0, 4\} \quad x \neq 0 \quad x \neq 4$$

$$2) \frac{x+4}{x^2-4x} \quad R$$

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$$\Delta = 1 - 16 = -15$$

4

$$\rightarrow y = \frac{x+4}{x^2-4x+4}$$

$$3) \frac{x+4}{x^2-4x+4} \quad x^2-4x+4 = (x-2)^2$$

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

$$\Delta = 16 - 16 = 0 \rightarrow$$

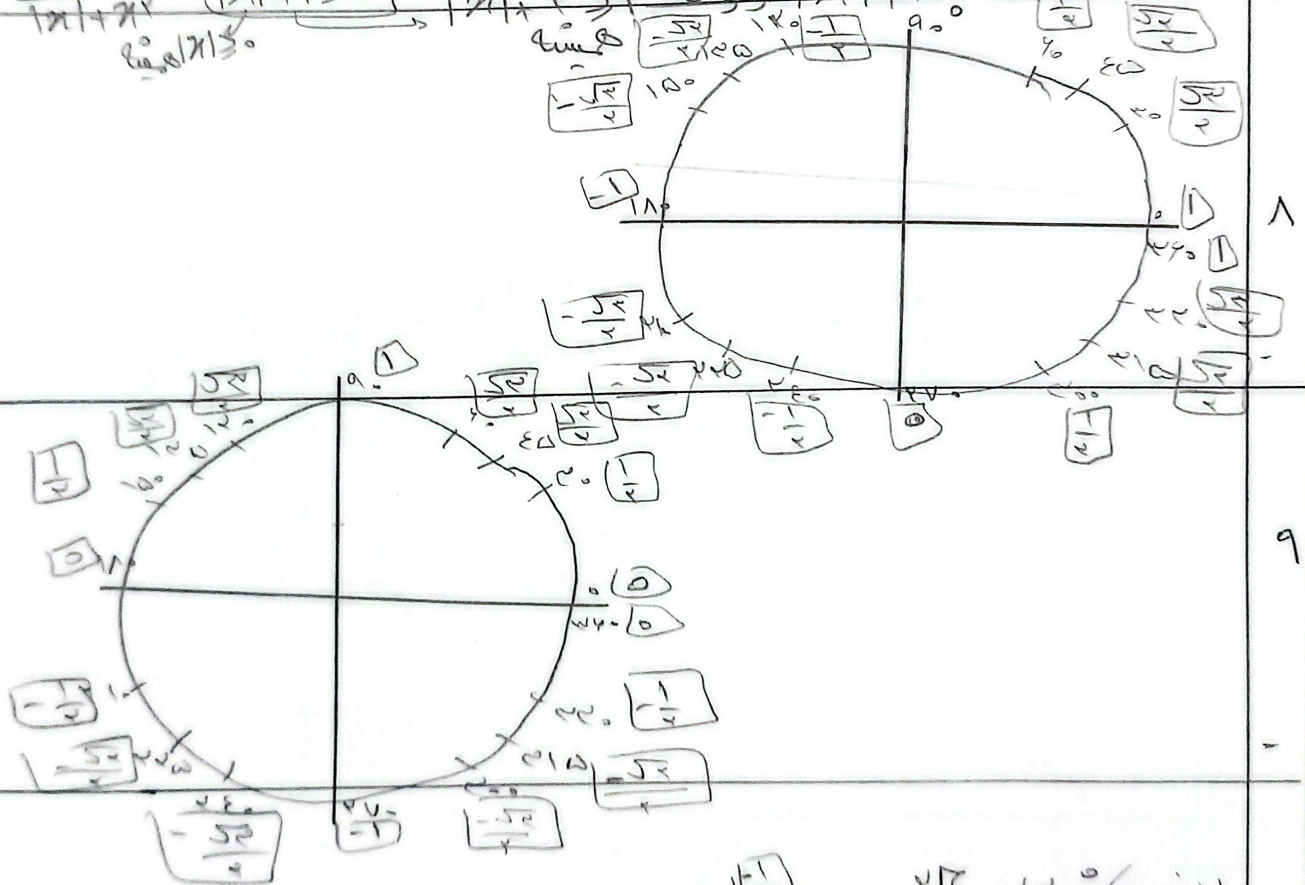
$$الف) y = \sqrt{4-x} + \sqrt{2x-2} \rightarrow \begin{cases} 4-x \geq 0 \\ 2x-2 \geq 0 \end{cases} \rightarrow \begin{cases} x \leq 4 \\ x \geq 1 \end{cases} \rightarrow [1, 4]$$

$$1) \frac{x+1}{x^2+1} \quad x^2+1 > 0 \quad R$$

✓

$$2) \frac{5x-4}{x-4} \quad x-4 \neq 0 \quad x-4 \geq 0 \quad [4, \infty) \cup (-\infty, 4)$$

$$3) \frac{2x+3}{|x|+x} \quad |x|+x > 0 \rightarrow x > 0 \quad R$$



9

$$\sin \theta = \frac{1}{2} \quad \theta = 30^\circ, 150^\circ$$

$$\sin \theta = -\frac{\sqrt{3}}{2} \quad \theta = 210^\circ, 330^\circ$$

$$\frac{\sqrt{3}}{2} = 120^\circ$$

$$\frac{11\pi}{6} = 330^\circ$$

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