

الف: $|m| - 2y = |m| + 1 \Rightarrow |m|(y-1) = 1+2y$

$$|m| = \frac{1+2y}{y-1} \rightarrow \frac{-\frac{1}{2}}{+1-1+} (-\infty, -\frac{1}{2}] \cup (1, +\infty)$$

ب: $|m| + \frac{1}{|m|} \xrightarrow{\text{روش}} a + \frac{1}{a} \xrightarrow{\text{مشتق}} a > 0 \quad R = [1, +\infty)$
 $R_f = (1, +\infty)$

ج: $ym + 2y = m^2 + m - 2 \Rightarrow m^2 + (1-y)m - 2 - 2y$

$$\Delta = (1-y)^2 - 4(1)(-2-2y) \geq 0 \Rightarrow y^2 + 4y + 12 \geq 0$$

$$(y+2)(y+6) \geq 0 \quad \frac{-4-2}{+1-1+} (-\infty, -6], [-2, +\infty)$$

د: $D_f \Rightarrow m^2 + 1 \neq 0 \Rightarrow \Delta = 1 - 4 < 0 \rightarrow \neq 0$

$$\Rightarrow D_f = \mathbb{R}$$

$$ym^2 - ym + y = m^2 - m + \frac{1}{2} \Rightarrow (y-1)m^2 + (1-y)m + y - \frac{1}{2}$$

$$\Delta = (1-y)^2 - 4(y-1)(y-\frac{1}{2}) > 0 \quad 3y - 3y^2 > 0$$

ك) الف: $x_{\max} = -\frac{k}{-1} = 1$ $\sqrt{(-\infty, 1]}$
 $y_{\max} = -k + 1 - 1 = 1$

$$R_f = [0, \sqrt{3}]$$

ب: $x_{\min} = \frac{1}{k} = 1$ $\sqrt{-1, +\infty} \rightarrow (-1, +\infty)$
 $y_{\min} = 1 - 1 - 1 = -1$

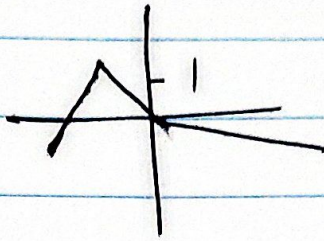
و) الف: $x^2 - x + 1 \rightarrow \mathbb{R} \rightarrow \mathcal{G} \mathbb{R} = \mathbb{R}$

ب: $\frac{x^2 + 1}{x} \rightsquigarrow x + \frac{1}{x} \rightsquigarrow \bigcup_{x \neq 0} (1, +\infty) = [1, +\infty)$

ج) الف: $\begin{cases} x > 3 \rightarrow x + 1 \\ 1 < x < 3 \rightarrow x - 1 \\ x < 1 \rightarrow -x - 1 \end{cases}$ $R_f = [-1, +\infty)$

ب: منه لا شيء $R_f = [1, +\infty)$

$$v) \begin{cases} x > 2 \rightarrow -x - 4 \\ -1 < x < 2 \rightarrow -3 \\ x < -1 \rightarrow x + 4 \end{cases}$$

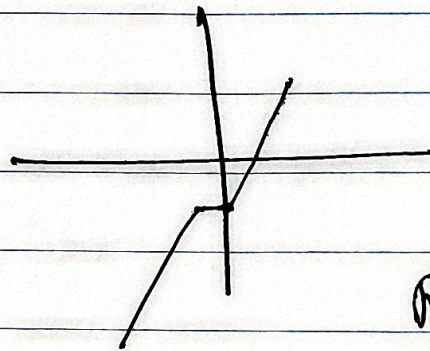


$$\begin{bmatrix} -3 \\ 1 \end{bmatrix}, \begin{bmatrix} -1 \\ 2 \end{bmatrix}, \begin{bmatrix} 3 \\ -4 \end{bmatrix}$$

$$= (-\infty, -3] \cup [-\frac{1}{3}, \infty)$$

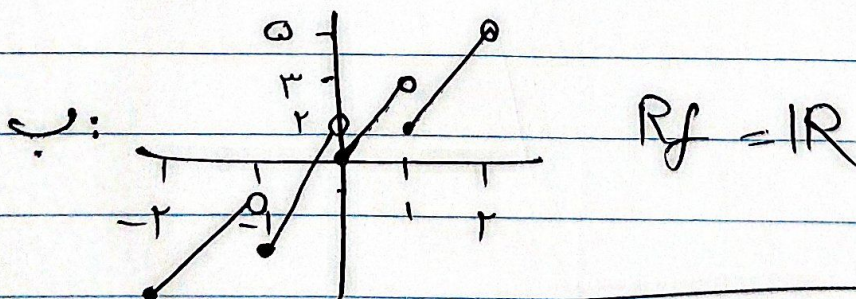
ار جواب

$$u) \begin{cases} x > 0 \rightarrow x - 1 \\ -\frac{1}{2} < x < 0 \rightarrow -1 \\ x < -\frac{1}{2} \rightarrow -x + 1 \end{cases}$$



$$R_f = \mathbb{R}$$

$$q) \text{ الف: } \begin{array}{c} \bullet \quad \bullet \quad \bullet \quad \bullet \quad \bullet \\ \circ \quad \circ \quad \circ \quad \circ \quad \circ \\ \hline -2 \quad -1 \quad 1 \quad 2 \end{array} \quad R_f = \{1\}, \{3\}$$



$$R_f = \mathbb{R}$$

$$lo) \text{ الف: } \begin{aligned} \max &= 1 \\ \min &= -\frac{1}{2} \\ -\frac{b}{a} &= \frac{1}{2} \end{aligned} \quad R_f = \left[-\frac{1}{2}, 1\right]$$

ب:

$$\begin{aligned} \max &= 3 \\ \min &= 1 \\ -\frac{b}{a} &= -\frac{1}{2} \end{aligned} \quad R_f = [1, 3]$$