

الف) $y = n^r - r_m^r + r_m \rightarrow y = (n-1)^r + 1 \rightarrow$ 19.5 5

$\sqrt{y-1} + 1 = n \rightarrow R_f = 12$

ب) $y = \frac{1}{n^r - r_m} \rightarrow y n^r - r_m n - 1 = 0 \rightarrow n \Rightarrow f(y) - f(-y) \rightarrow \varepsilon y^r + \varepsilon y = \Delta$

$n = r_y \pm \sqrt{\varepsilon y^r + \varepsilon y} \rightarrow \varepsilon y (y+1) \rightarrow \frac{-1}{\pm \sqrt{\varepsilon y^r + \varepsilon y}} \rightarrow R_f = (-\infty, -1] \cup (0, +\infty)$

الف) $y = n^r - \varepsilon n + 1 \rightarrow \frac{-b}{2a} = \frac{\varepsilon}{r} = r$
 $\varepsilon - 1 + b = 4$
 $R_f = [4, +\infty)$

ب) $y = -n^r + 4n + r$
 $\frac{-b}{2a} = \frac{-4}{-r} = r$
 $-9 + 11 + r \rightarrow 12 \rightarrow R_f = (-\infty, 12]$

الف) $y = \sqrt{n^r - \varepsilon n - r}$
 $\frac{-b}{2a} = \frac{\varepsilon}{r} = r \Rightarrow \varepsilon - 1 - r = -7 \rightarrow R_f = [0, +\infty)$

ب) $y = \sqrt{4n - n^r}$
 $\frac{-b}{2a} = \frac{-4}{-r} = r$
 $11 - 9 = 2 \rightarrow R_f = [0, 2]$

الف) $y = n^r - 2n^r + r_m + 1$
 $R_f = 11$

ب) $y = n^r - 4n^r + r_m + r$
 $R_f = 12$

الف) $y = \sqrt{n^r - 4n^r + 2n + 1}$
 $R_f = [0, +\infty)$

ب) $y = (n^r - \varepsilon n^r + r_m + 1)^r$
 $R_f = [0, +\infty)$

الف) $y = \frac{r_m + 1}{n - r} \quad R_f = 12 - \{12\}$

ب) $y = \frac{r_m + 1}{n + 1} \quad R_f = 12 - \{12\}$

الف) $y = \sqrt{\frac{r_m + \varepsilon}{n + 1}} \rightarrow R_f = [0, +\infty) - \{\sqrt{r}\}$

ب) $y = \sqrt{\frac{r_m + 1}{r - n}} \quad R_f = [0, +\infty)$

الف) $y = \frac{2x-2}{x+1}$
 $\frac{a}{c} = 2 \rightarrow$ خط افقی
 $(-1) \rightarrow$ خط عمودی
 $\text{مقیاس} = -\frac{2}{1}$

ب) $y = \frac{2x-1}{x+1}$
 $\frac{a}{c} = 2 \rightarrow$ خط افقی
 $(-1) \rightarrow$ خط عمودی
 $\text{مقیاس} = -\frac{1}{1}$

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

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

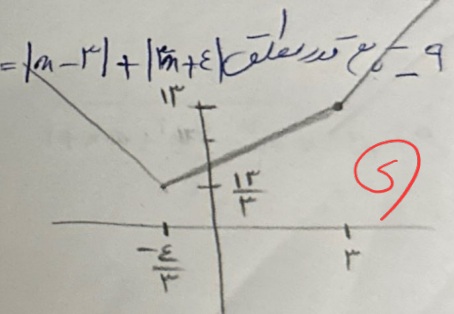
ه) $y = \frac{\sqrt{x^2+1}}{\sqrt[3]{x}} \rightarrow \sqrt{x} + \frac{1}{\sqrt[3]{x}}$
 $R_f = (-\infty, -1] \cup [1, +\infty)$

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

ز) $y = \frac{x^2+1}{x^2+3} \rightarrow R_f = [\frac{10}{3}, +\infty)$
 $\frac{a}{c} = \frac{10}{3} \rightarrow$ خط افقی
 $(3) \rightarrow$ خط عمودی
 $\text{مقیاس} = \frac{10}{3}$

ح) $y = \frac{x^2+4}{\sqrt{x^2+4}} \rightarrow R_f = [\frac{4}{3}, +\infty)$
 $\frac{a}{c} = \frac{4}{3} \rightarrow$ خط افقی
 $(3) \rightarrow$ خط عمودی
 $\text{مقیاس} = \frac{4}{3}$

ط) $y = |x-3| + |x+4| \rightarrow R_f = [7, +\infty)$
 $\frac{a}{c} = 7 \rightarrow$ خط افقی
 $(-4) \rightarrow$ خط عمودی
 $(3) \rightarrow$ خط عمودی
 $\text{مقیاس} = 1$



ث) $y = |x-2| + |x+1| \rightarrow R_f = [3, +\infty)$
 $\frac{a}{c} = 3 \rightarrow$ خط افقی
 $(-1) \rightarrow$ خط عمودی
 $(2) \rightarrow$ خط عمودی
 $\text{مقیاس} = 1$

ج) $y = |x-2| - |x+1| \rightarrow R_f = [-1, +\infty)$
 $\frac{a}{c} = -1 \rightarrow$ خط افقی
 $(-1) \rightarrow$ خط عمودی
 $(2) \rightarrow$ خط عمودی
 $\text{مقیاس} = 1$

$y = |x-1| - |x+1|$