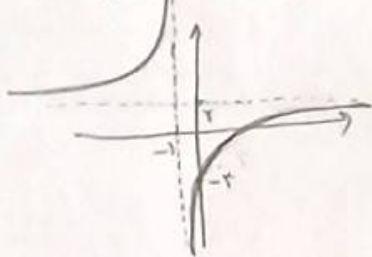


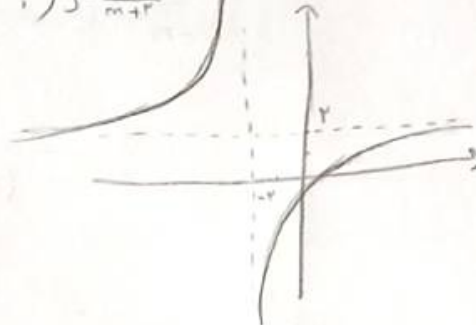
الف) $y = n^3 - 3n^2 + 3n$ $y = (n-1)^3 + 1$ $n = \sqrt[3]{y-1} + 1$ $R_f = \mathbb{R}$	ب) $y = \frac{1}{n^2-2n}$ $y = \frac{1}{(n-1)^2-1}$ $n = \sqrt{1+\frac{1}{y}} + 1$ $R_f: (-\infty, 0) \cup (0, +\infty)$	۱
الف) $y = n^2 - 4n + 6$ $\left \frac{y}{4} = 2 \right R_f: [4, +\infty)$	ب) $y = -n^2 + 4n + 3$ $\left \frac{y}{12} = 3 \right R_f: (-\infty, 12]$	۲
ب) $y = \sqrt{n^2 - 4n - 3}$ $\left \frac{y}{-4} = 2 \right R_f: \sqrt{[-4, +\infty)} = [0, +\infty)$	د) $y = \sqrt{-n^2 + 4n}$ $\left \frac{y}{4} = 3 \right R_f: \sqrt{[-\infty, 4]} = [0, 2]$	۳
الف) $y = n^3 - 6n^2 + 3n + 1$ $R_f: \mathbb{R}$	ب) $y = n^3 - 4n^2 + 3n + 2$ $R_f: \mathbb{R}$	۴
ب) $y = \sqrt{n^3 - 4n^2 + 3n + 1}$ $R_f: [0, +\infty)$	د) $y = (n^3 - 4n^2 + 3n + 1)^2$ $R_f: [0, +\infty)$	۵
الف) $y = \frac{2n+1}{n-2}$ $R_f: \mathbb{R} - \{2\}$	ب) $y = \frac{2n+1}{n+1}$ $R_f: \mathbb{R} - \{2\}$	۶
الف) $y = \sqrt{\frac{2n+4}{n+1}}$ $R_f: \sqrt{\mathbb{R} - \{2\}} = [0, +\infty) - \{\sqrt{2}\}$	ب) $y = \sqrt{\frac{2n+1}{2-n}}$ $R_f: \sqrt{\mathbb{R} - \{-2\}} = [0, +\infty)$	۷

الف) $y = \frac{r^n - n}{n+1}$ $n=0 \rightarrow y = -r$



ب) $y = \frac{r^n - 1}{n+1}$

$n=0 \rightarrow y = -\frac{1}{r}$



الف) $y = \sin n + \frac{1}{\sin n}$

$R_f: (-\infty, -r] \cup [r, +\infty)$

ب) $\frac{n^r + 1}{n^r} = n^r + \frac{1}{n^r}$

$R_f = (-\infty, -r] \cup [r, +\infty)$

ج) $y = \frac{\sqrt{n^r + 1}}{\sqrt{n}} = \sqrt{n} + \frac{1}{\sqrt{n}}$

$R_f: (-\infty, -r] \cup [r, +\infty)$

د) $y = \sqrt{n} + \frac{1}{\sqrt{n}}$

$R_f = [r, +\infty)$

الف) $y = n^r + \frac{1}{n^r + r}$

$n^r + r + \frac{1}{n^r + r} \cdot r \xrightarrow{n=0} r + \frac{1}{r} - r = \frac{1}{r}$

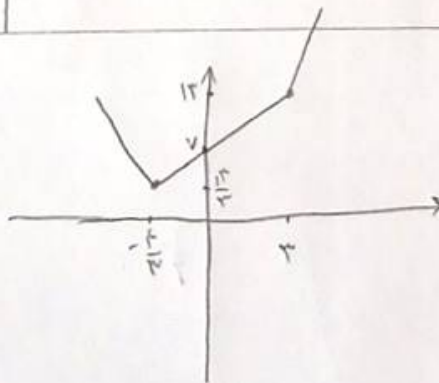
$R_f: [\frac{1}{r}, +\infty)$

ب) $\frac{n^r + r}{\sqrt{n^r + r}} = \sqrt{n^r + r} + \frac{1}{\sqrt{n^r + r}}$

$R_f: [r, +\infty)$

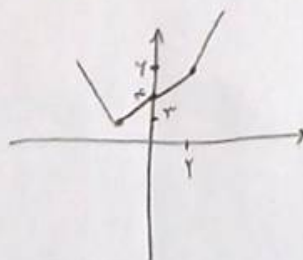
$y = |n-r| + |rn+r|$

$\frac{-r}{r} \quad r$
 $-f_n - 1 \quad | \quad rn + r \quad | \quad fn + 1$



الف) $y = |n-r| + |rn+r|$

$\frac{-1}{r-n} \quad r$
 $-rn \quad | \quad rn + r \quad | \quad rn$



$y = |rn-r| - |n+1|$

$\frac{-1}{r-n} \quad 1$
 $r-n \quad | \quad -rn+1 \quad | \quad n-r$

