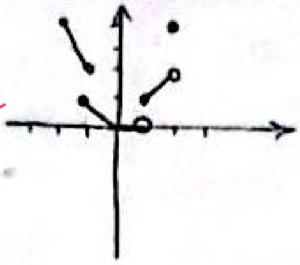
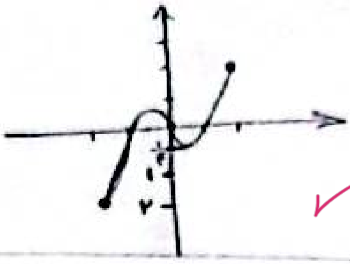
۷- ۸

$y=x[x]\rightarrow$  $R_f=[0,4]-\{2\}$ ۲

ب) $y=x|x|-x\rightarrow\begin{cases}x^2-x & x\geq 0\\ -x^2-x & x<0\end{cases}$  $R_f=[-2,2]$

۸- ۲

$y=f(x)=\frac{1}{x}+\frac{1}{x+1}+\frac{1}{x^2+1}=\frac{x+1+x+1}{x^2+1}=\frac{\cancel{(x+1)}\times 2}{x\cancel{(x+1)}}=\frac{2}{x}$

$D_f=\mathbb{R}-\{0,-1\}\rightarrow R_f=\mathbb{R}-\{0,\frac{2}{-1}\}=\mathbb{R}-\{\frac{0}{a},\frac{-2}{b}\}\rightarrow a+b=-2$

۹- ۲

$f(x)=\frac{\cancel{(\sqrt{x}-1)}(\sqrt{x}-3)}{(\sqrt{x}-1)^2}=\frac{\sqrt{x}-3}{\sqrt{x}-1}=y\rightarrow\sqrt{x}=\frac{y-3}{y-1}\rightarrow\frac{y-3}{y-1}\geq 0\rightarrow$ $\begin{array}{ccccc} & 1 & & 3 & \\ + & \nexists & - & 0 & +\end{array}$

$\rightarrow(-\infty,1)\cup[3,+\infty)$

$D_f=[0,+\infty)-\{1\}$

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

۱۰- ۲

$f(x)=\frac{x^3+2x^2-x-2}{x^2-1}=\frac{x(x^2-1)+2(x^2-1)}{x^2-1}=\frac{\cancel{(x^2-1)}(x+2)}{\cancel{x^2-1}}=x+2$

$D_f=\mathbb{R}-\{1,-1\}\rightarrow R_f=\mathbb{R}-\{\frac{1+2}{3},\frac{-1+2}{1}\}\rightarrow 1+3=4$

سوال ۱ تا ۴ ← صفر