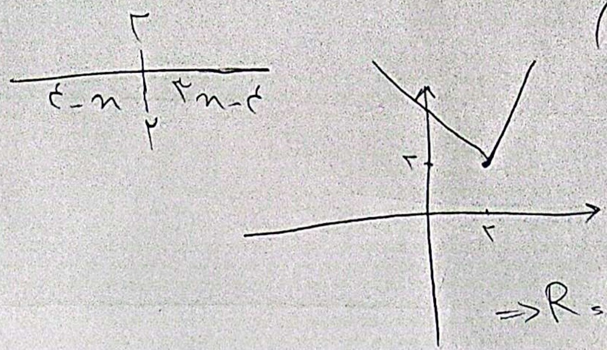
محمدامین جعفری

تکلیف ۷

ریاضی دهم پسر B

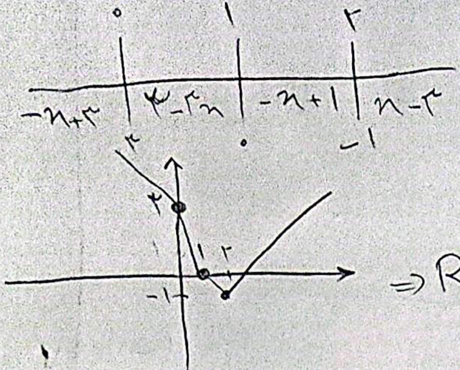
۱

الف)



$\Rightarrow R=[۲,+\infty)$

ب)



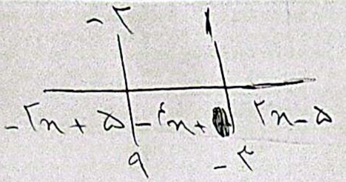
$\Rightarrow R=[-۱,+\infty)$

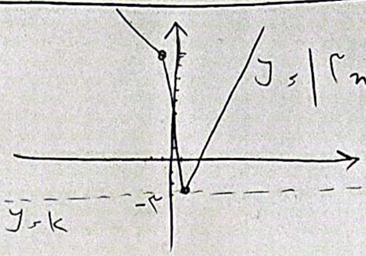
۲

$y=|۲x-۴|-|x+۲|$

$y=k$

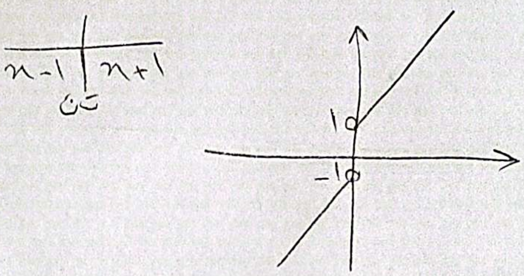
$\Rightarrow k=-۳$



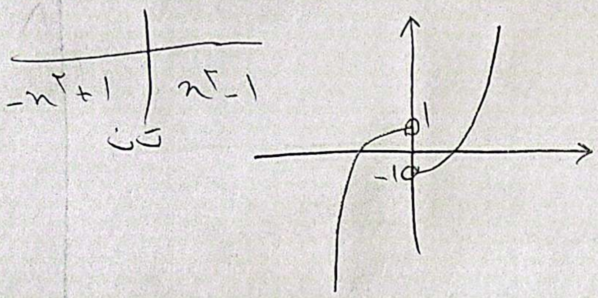


۳

الف)

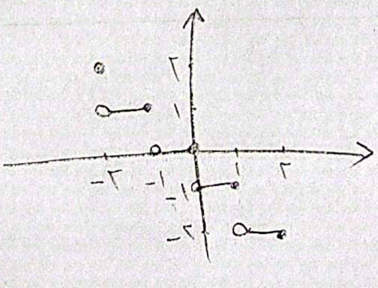


ب)

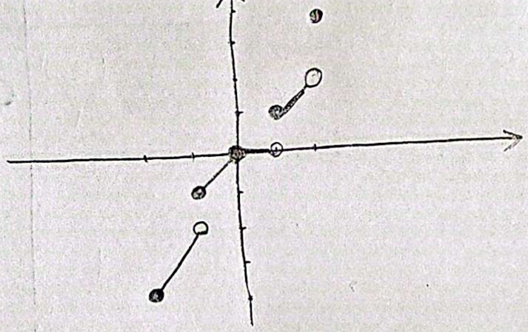


۴

الف)



ب)



۵

الف)

$۰\le ۳x-[۳x]<۱$

$\Rightarrow R=[۰,۱)$

ب)

$۴x-۴[x]=۴(x-[x])$

$\Rightarrow ۰\le ۴x-۴[x]<۴$

$\Rightarrow R=[۰,۴)$

ج)

$x-۵[\frac{x}{۵}]=۵(x-[\frac{x}{۵}])$

$۰\le x-[\frac{x}{۵}]<۱ \Rightarrow ۰\le x-[\frac{x}{۵}]<۵$

$\Rightarrow R=[۰,۵)$

د)

$۰\le ۲x-[۲x]<۱$

$\Rightarrow -۱<[۲x]-۲x\le ۰$

$\Rightarrow R=(-۱,۰]$

۶

الف) $-\sqrt{۱۳}\leq ۳\sin x+۲\cos x\leq\sqrt{۱۳}$

$\Rightarrow R=[-\sqrt{۱۳},\sqrt{۱۳}]$

ب) $\ldots-۴\cos x\leq\sqrt{۲۵}$

$R=[-۵,۵]$

ج) $-\sqrt{۲۹}\leq ۲\sin x+۵\cos x\leq\sqrt{۲۹}$

$\Rightarrow -۶\leq[۲\sin x+۵\cos x\leq ۵$

$\Rightarrow R=[-۶,۵]$

د) $-\sqrt{۵}\leq\cos x-۲\sin x\leq\sqrt{۵}$

$\Rightarrow ۰\leq\sqrt{\cos x-۲\sin x}\leq\sqrt[۴]{۵}$

$\Rightarrow R=[۰,\sqrt[۴]{۵}]$

۷

الف)

$\sin^۲:\begin{cases}۱\Rightarrow y=۶\\ ۰\Rightarrow y=۲\\ -\frac{۳}{۲}\ \text{غ ق ق}\end{cases}\Rightarrow R=[۲,۶]$

ب)

$\sin^۲:\begin{cases}۱\Rightarrow y=۷\\ ۰\Rightarrow y=۲\\ -\frac{۳}{۲}\ \text{غ ق ق}\end{cases}\Rightarrow R=[۲,۷]$

۸

الف) $y=\sin^۲+۴\cos^۲=۳\cos^۲+۱\qquad \cos^۲:\begin{cases}۱\Rightarrow y=۴\\ ۰\Rightarrow y=۱\end{cases}$

$\Rightarrow R=[۱,۴]$

ب) $y=\dfrac{۲\cot x}{۱+\cot^۲x}=\dfrac{\frac{۲\cos x}{\sin x}}{\frac{۱}{\sin^۲x}}=۲\cos x\cdot\sin x=\sin ۲x\qquad \sin ۲x=\begin{cases}۱\\ -۱\end{cases}$

$\Rightarrow R=[-۱,۱]$

۹

الف) $y=\sin^۶x+\cos^۶x$

$۲^{۱-۳}\leq\sin^۶x+\cos^۶x\leq۱\Rightarrow\frac{۱}{۴}\leq\sin^۶x+\cos^۶x\leq۱$

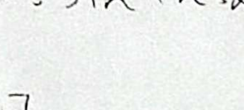
$\Rightarrow R=[\frac{۱}{۴},۱]$

ب) $۲^{۱-۴}\leq\sin^۸x+\cos^۸x\leq۱\Rightarrow\frac{۱}{۸}\leq\sin^۸x+\cos^۸x\leq۱$

$\Rightarrow ۰\leq[\sin^۸x+\cos^۸x]\leq۱\Rightarrow R=[۰,۱]$

۱۰

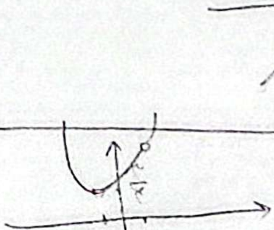
الف) $\dfrac{۲x^۲+۷x-۴}{x+۴}=\dfrac{(۲x-۱)(x+۴)}{\cancel{x+۴}}\xrightarrow{x\neq-۴}$



$\Rightarrow R=\mathbb{R}-\{-۹\}$

$۲(-۴)-۱=-۹$

ب) $\dfrac{(\cancel{x-۱})(x^۲+x+۱)}{(\cancel{x-۱})}\xrightarrow{x\neq۱}$



$\Rightarrow R=[\frac{۳}{۴},+\infty)$

$x_{min}=-\frac{b}{۲a}=-\frac{۱}{۲}\Rightarrow y_{min}=(-\frac{۱}{۲})^۲+(-\frac{۱}{۲})+۱=\frac{۳}{۴}$