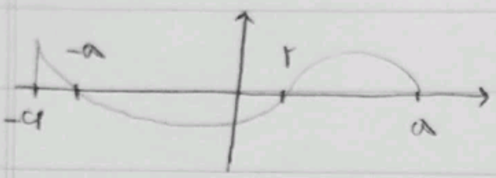
دهم، مبری

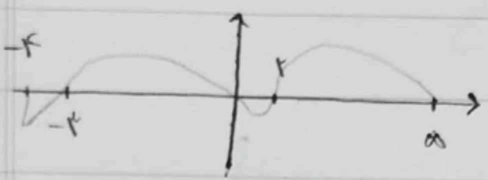
۱، دامنه تابع $y=\sqrt{\underbrace{x}_{0}\underbrace{f(x)}_{2,\,5,\,-5}\geq 0}$



-5		0		2		5	
$-$	$+$		$-$		$+$		$-$

$D_f:[-5,0]\cup[2,5]$

۲، دامنه تعریف $y=\sqrt{\dfrac{-x^2\geq 0}{f(x)}\geq 0}$ $\rightarrow -4, 0, 2, 5$



مضاعف

-4		0		2		5	
$-$	$+$		$+$		$-$		$+$

« شامل چند شمار عدد صحیح است »

۳، $f(x)-\cancel{2f(2)}^{+4}=x^2-3x+\cancel{4}$

$f(2)-2f(2)=4-6+4$

$f(2)=-2$

$f(-2)=$ ؟

$f(-2)=4+6+4\cancel{-4}$

$f(-2)=10$ ✓

۴، $f(x)\begin{cases} x-\sqrt{x+4} & ; x>2 \\ 2x+3 & ; x\leq 2\end{cases}$

$f(\cancel{f(5)}^{2})^{7}+f(\cancel{f(1)}^{5\to 2})=7+2=9$ ✓

۵، $f(x)=ax^2-bx+2$

$f(x-1)-f(x)=6x+2$

$a(x-1)^2-b(x-1)+2-ax^2+bx-2=6x+2$

$\cancel{ax^2}-2ax+a-\cancel{bx}+b+\cancel{2}-\cancel{ax^2}+\cancel{bx}-\cancel{2}=6x+2$

$(-2a)x+(a+b)=6x+2$ $\quad -2a=6 \quad a=-3$

$-3+b=2 \quad b=5$

$a-b=-3-5=-8$ ✓

۶، $f(x)=\dfrac{x^2+4x+5}{x^2+4x+7}$

$f(\sqrt{3}-2)=\dfrac{3-\cancel{4\sqrt{3}}+4+\cancel{4\sqrt{3}}-8+5}{3-\cancel{4\sqrt{3}}+4+\cancel{4\sqrt{3}}-8+7}=\dfrac{4}{6}=\dfrac{2}{3}$ ✓

مختار شیری

۷) $f(x-\frac{1}{x}) = \frac{x^4+1}{x^2}$ $\qquad f(-3) = (-3)^2 + 2 = 11$

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

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

$\Rightarrow f(x) = x^2 + 2$

۸) $f(x) = \{(2,0),(1,-4),(0,2),(7,1)\}$ $\qquad g(x) = \sqrt{9-x^2}$

$D_g = -3 \leq x \leq 3$

الف) $\frac{f}{g}\ \{(2,0),(1,\frac{-2}{\sqrt{2}}),(0,\frac{2}{3})\}$

ب) $\frac{g}{f} = \{\cancel{(2,\frac{\sqrt{5}}{0})}_{\text{ت.ن}},(1,\frac{\sqrt{2}}{-2}),(0,\frac{3}{1})\} = \{(1,\frac{\sqrt{2}}{-2}),(0,\frac{3}{2})\}$

۹) الف) $2f(x) = \{(2,2),(3,8),(-5,4),(1,-4)\}$

ب) $f(x)+1 = \{(2,2),(3,5),(-5,3),(1,-1)\}$

ج) $3f^2(x)+1 = \{(2,4),(3,49),(-5,13),(1,13)\}$

د) $f(2x) = \{(1,1),(\frac{3}{2},4),(\frac{-5}{2},2),(\frac{1}{2},-2)\}$

۱۰) الف) $f-g = \{(1,4),(2,2),(3,2)\}$

ب) $\frac{2f}{g} = \{\cancel{(1,\frac{8}{0})}_{\text{ت.ن}},(2,9),(3,-2)\} = \{(2,9),(3,-2)\}$