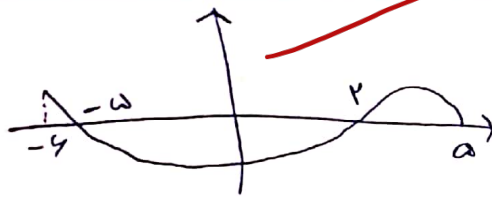


باسم و جمع و خیرانه

نام و نام خانوادگی: زهرا دهقانی با شماره شناسنامه: ۷

۱۷/۱۵

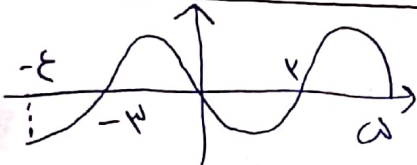


$$y = \sqrt{x f(x)} \rightarrow x f(x) \geq 0$$

$$D_f = [-4, 0] \cup (2, 5]$$

x	-4	-3	0	2	5
x	-	-	0	+	+
f(x)	+	+	منفی	-	+
p	منفی	-	+	-	+

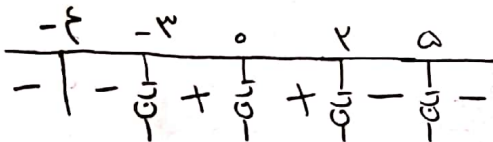
۱۱۵



$$y = \sqrt{\frac{-x}{f(x)}} \rightarrow f(x) \neq 0$$

$$f(x) \neq -4, 0, 2, 5$$

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$$D_f = (-4, 2) - \{0\}$$

جواب

شماره ۳ عدد صحیح {۱ و ۲ و ۳}

$$f(x) - x f(x) = x^4 - 3x + 8$$

$$x = -2 \rightarrow f(-2) - x f(x) = 8 + 4 + 8$$

$$x = 2 \rightarrow f(2) - x f(x) = 8 - 4 + 8$$

$$-2 = x f(x) - f(x)$$

$$f(x) = -2$$

$$f(-2) + 8 = 18$$

$$f(-2) = 10$$

$$f(f(5)) + f(f(1)) \Rightarrow f(f(5)) + f(5) \Rightarrow f(2) + 2 \Rightarrow 2 + 2 = 4$$

$$f(x-1) - f(x) = 4x + 2$$

$$\hookrightarrow f(x-1) = a(x-1)^4 - b(x-1) + 2 = a(x^4 + 1 - 4x) - b(x-1) + 2$$

$$f(x-1) - f(x) = ax^4 + a - 4xa - b(x-1) + 2 - ax^4 + bx - 2 = a + b - 4ax$$

$$\Rightarrow (a+b) - 4ax = 4x + 2 \Rightarrow -4a = 4 \Rightarrow a = -1 \Rightarrow a+b = 2 \Rightarrow b = 3 \Rightarrow a-b = -4$$

$$f(x) = \frac{x^2 + \varepsilon x + \omega}{x^2 + \varepsilon x + \nu} \Rightarrow \frac{(\sqrt{3}-1)^2 + \varepsilon(\sqrt{3}-1) + \omega}{(\sqrt{3}-1)^2 + \varepsilon(\sqrt{3}-1) + \nu}$$

$$= \frac{\nu - \varepsilon\sqrt{3} + \varepsilon\sqrt{3} - 1 + \omega}{\nu - \varepsilon\sqrt{3} + \varepsilon\sqrt{3} - 1 + \nu} = \frac{\nu - 1 + \omega}{\nu - 1 + \nu} = \frac{\varepsilon}{4} = \frac{\nu}{3}$$

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$$f\left(x - \frac{1}{x}\right) = \frac{x^2 + 1}{x^2} \xrightarrow{x=-2} f(-3) = \frac{(-2)^2 + 1}{(-2)^2} = \frac{5}{4}$$

$$x - \frac{1}{x} = -3$$

$$x = -2$$

0

$$\text{الف) } \frac{f}{g} = \left\{ \left(2, \frac{0}{\sqrt{2}}\right), \left(1, \frac{-\varepsilon}{\sqrt{2}}\right), \left(0, \frac{\nu}{\sqrt{2}}\right) \right\} = \left\{ \left(2, 0\right), \left(1, \frac{\nu}{\sqrt{2}}\right), \left(0, \frac{\nu}{\sqrt{2}}\right) \right\}$$

$$D_g = [-3, 3] \quad D_f = \{0, 1, 2, \nu\}$$

$$\text{ب) } \frac{g}{f} = \left\{ \left(0, \frac{\sqrt{2}}{\nu}\right), \left(1, \frac{\sqrt{2}}{-\varepsilon}\right), \left(2, \frac{\sqrt{2}}{\nu}\right) \right\} = \left\{ \left(0, \frac{\nu}{\sqrt{2}}\right), \left(1, \frac{-\sqrt{2}}{\nu}\right) \right\}$$

$$D_g = [-3, 3] \quad D_f = \{0, 1, 2, \nu\}$$

$$\text{الف) } \nu f(x) = \left\{ (2, \nu), (3, 1), (-\omega, \varepsilon), (1, -\varepsilon) \right\}$$

$$\text{ب) } f(x) + 1 = \left\{ (2, \nu), (3, \omega), (-\omega, \nu), (1, -1) \right\}$$

$$\text{ج) } \nu f^2(x) + 1 = \left\{ (2, \nu^2), (3, \varepsilon 1), (-\omega, 12), (1, 12) \right\}$$

$$\text{د) } f(\nu x) = \left\{ \left(\frac{\nu}{\nu}, 1\right), \left(\frac{\nu}{\nu}, \varepsilon\right), \left(-\frac{\omega}{\nu}, \nu\right), \left(\frac{1}{\nu}, -\nu\right) \right\}$$

$x=2 \Rightarrow f(2)=1 \rightarrow f(2)+1=1+1=2$
 $x=3 \Rightarrow f(3)=\varepsilon \rightarrow f(3)+1=\varepsilon+1$
 $x=-\omega \Rightarrow f(-\omega)=\nu \rightarrow f(-\omega)+1=\nu+1$
 $x=1 \Rightarrow f(1)=-\varepsilon \rightarrow f(1)+1=-\varepsilon+1$

$$\text{الف) } f - g = \left\{ (2, \nu), (1, \varepsilon), (3, \nu) \right\}$$

5

$$\text{ب) } \frac{\nu}{g} = \nu f = \left\{ (2, \nu), (3, \varepsilon), (1, 1), (3, \nu), (\omega, \varepsilon) \right\}$$

$$\frac{\nu}{g} = \left\{ \left(2, \frac{\nu}{1}\right), \left(1, \frac{1}{\varepsilon}\right), \left(3, \frac{\nu}{1}\right) \right\} = \left\{ (2, \nu), (3, -\nu) \right\}$$