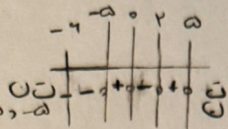


$$x f(x) \geq 0$$

$$f(x) = 0 \rightarrow x = 2, \omega, -\omega$$



$$D_f = [2, \omega) \cup [-\omega, 0]$$

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$$\frac{-x}{f(x)} \geq 0$$

$$f(x) \neq 0 \rightarrow x \neq 2, \omega, -\omega$$

$$x = 0$$

$$f(x) = 0 \rightarrow x = 2, \omega, -\omega$$

$$[-2, 2] - \{-2, 0, 2\} = (-2, 2) - \{0\} = (-2, 2) \setminus \{0\}$$

$$-2, -1, 1$$

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

$$f(-1) = 1 + 4 + 1 - 6 = 0$$

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$$f(1) = 1 + 3 = 4$$

$$f(\omega) = \omega - \sqrt{9} = \omega - 3 = 1$$

$$f(2) = 4 + 3 = 7$$

$$f(f(\omega)) + f(f(1)) = 4 + 3 = 7$$

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$$x = 1$$

$$f(x) = 5a - 2b + 1$$

$$f(1) = 5a - 2b + 1$$

$$f(2) = 9a - 2b + 1$$

$$-5a + 2b = 1 + 5a - 2b + 1 = 11 + 2 \Rightarrow b = 11$$

$$-3a + b = 11$$

$$f(1) - f(2) = 5a - 2b + 1 - 9a + 2b - 1 = -4a = 2 \Rightarrow a = -\frac{1}{2}$$

$$-5a + b = 11 \Rightarrow 5a - b = -11 \Rightarrow b = 11 - 5a = 11 - 5(-\frac{1}{2}) = 11 + \frac{5}{2} = \frac{27}{2}$$

$$\begin{cases} -5a + b = 11 \\ 3a - b = -11 \end{cases} \Rightarrow \begin{cases} -5a + b = 11 \\ -2a = 0 \end{cases} \Rightarrow \begin{cases} a = 0 \\ b = 11 \end{cases}$$

$$a + 2 = 2$$

$$a - b = -11$$

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$$f(\sqrt{x}-2) = \frac{3+x-4\sqrt{x}+4\sqrt{x}-1+2}{3+x-4\sqrt{x}+4\sqrt{x}-1+4} = \frac{x}{9}, \leq \frac{x}{9}$$

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

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

$$f(-3) = 9 + 3 = 12$$

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$$g(x) = \sqrt{9-x^2}$$

$$9-x^2 \geq 0 \Rightarrow -x^2 \geq -9 \Rightarrow x^2 \leq 9 \Rightarrow -3 \leq x \leq 3$$

$$= \frac{f}{\sqrt{x}} = \frac{x}{\sqrt{x}} = \sqrt{x}$$

$$(a) \frac{f}{g} = \left[\left(2, \frac{0}{\sqrt{2}} \right) \left(1, \frac{-1}{\sqrt{1}} \right) \left(0, \frac{1}{\sqrt{1}} \right) \right] \left[\left(2, 0 \right) \left(1, -\sqrt{2} \right) \left(0, \frac{1}{\sqrt{2}} \right) \right]$$

$$(b) = \frac{g}{f} = \left[\left(1, \frac{-\sqrt{1}}{1} \right) \left(0, \frac{1}{\sqrt{1}} \right) \right]$$

$$\hookrightarrow \frac{-\sqrt{1}}{1} = -\frac{\sqrt{1}}{1}$$

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$$a) 4f(x) = \left[\left(2, 2 \right) \left(3, 1 \right) \left(-2, 4 \right) \left(1, -4 \right) \right]$$

$$b) f(x)+1 = \left[\left(2, 2 \right) \left(3, 2 \right) \left(-2, 3 \right) \left(1, -1 \right) \right]$$

$$c) 2f'(x)+1 = \left[\left(2, 4 \right) \left(3, 4 \right) \left(-2, 13 \right) \left(1, 13 \right) \right]$$

$$d) f(x) = \left[\left(1, 1 \right) \left(\frac{1}{2}, 2 \right) \left(-\frac{2}{3}, 3 \right) \left(\frac{1}{4}, -2 \right) \right]$$

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$$a) 4-g = \left[\left(2, 2 \right) \left(1, 4 \right) \left(3, 2 \right) \right]$$

$$b) \frac{f}{g} = \left[\left(2, \frac{4}{1} \right) \left(1, \frac{1}{\sqrt{1}} \right) \left(3, \frac{1}{-1} \right) \right] = \left[\left(2, 4 \right) \left(3, -1 \right) \right]$$

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