

$$\sqrt{x^w f(x+1)} \rightarrow x^w (1+x)^{w-1} \geq 0$$

5

$$\begin{array}{c|c|c} & 0 & 1 \\ \hline - & + & - \end{array} \quad D = [0, 1]$$

$$f(x) = \sqrt{x + |x+2|}$$

$$f(-x) = \sqrt{-x + |-x+2|}$$

$$D = (-\infty, 1]$$

5

$$-x + |x+2| \geq 0$$

$$x \leq -2 \rightarrow x+2 \geq x \rightarrow -2x \geq -2 \rightarrow x \leq 1$$

$$|x+2| \geq x$$

$$x \geq -2 \rightarrow x-2 \geq x \quad \text{Q}$$

$$\frac{x-1}{f(x)} \geq 0$$

$$x=1$$

$$\begin{array}{c|c|c|c|c} & -2 & 1 & 2 & 3 \\ \hline - & + & - & + & - \end{array}$$

$$D = (-2, 1] \cup (2, 3)$$

5

$$\frac{1}{(x^w + x+1)(x^w - x-3)} \rightarrow x^w - x-3 = x^w + a + b \rightarrow a = -1, b = -3$$

تشریحی ندارد

1/50

$$\sqrt{-(a+b)} = \sqrt{-(-4)} = 2$$

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

$$\frac{x^w + x - \frac{x^w}{2^w} - \frac{x}{2}}{x^w}$$

$$\frac{(x^{\frac{w}{2}} - \frac{1}{2}) (x^{\frac{w}{2}} + \frac{1}{2} + 1)}{x^{\frac{w}{2}}} \geq 0 \quad D_f = [-1, 0) \cup (1, +\infty)$$

1/50

$$\begin{array}{c|c|c} & -1 & 1 \\ \hline - & + & - \end{array}$$

$$x=1 \rightarrow f(x)=1$$

$$x=2 \rightarrow f(x)=4$$

$$f(x) + f(1) = \textcircled{10}$$

$$f(1) = (1)^2 = 1 = 1$$

10

$$g(x) = (x+2)^2 - 2$$

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

$$\frac{(\sqrt[3]{x-2} - 1)^2 - 2}{(\sqrt[3]{x-2} + 1)^2 + 1} = \frac{-2}{1} = \textcircled{-2}$$

5

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

$$g(x) = \sqrt{(\sqrt{x-1} - 1)^2} = |\sqrt{x-1} - 1|$$

$$x \geq 1 \rightarrow \sqrt{x-1} = a + b\sqrt{x+1} \checkmark$$

$$1 \leq x \leq 1 \rightarrow a, b\sqrt{x+1},$$

$$\frac{a+b}{c} = \frac{-1}{2}$$

6

$$f(x) = (2, -4) \left(0, \frac{1}{2}\right)$$

$$g(x) = (2, 1) \left(0, 4\right)$$

$$\frac{g}{f} = (2, -\frac{1}{4}) \left(0, 6\right)$$

حاصل نویسی 1

$$\text{اف) } \left(\frac{1}{2}, 2\right) \left(\frac{2}{3}, -1\right) (2, 2) \left(-\frac{1}{2}, 2\right)$$

$$\text{ب) } (1, 2) (\sqrt{3}, -1) (2, 2)$$

$$\text{ج) } (-2, 1) (1, 2) (2, 1) (-1, 1)$$

$$\text{د) } (1, -4) (2, -1)$$

$$\left. \begin{array}{l} x^2=1 \rightarrow x=\pm 1 \\ x^2=2 \rightarrow x=\pm \sqrt{2} \\ x^2=4 \rightarrow x=\pm 2 \\ x^2=-1 \rightarrow x \end{array} \right\} \rightarrow \{(\pm 1, 2)(\pm \sqrt{2}, -1)(\pm 2, 2)\}$$

1

10