

$$11^x(a+1) = 11^x a - 1 + a \quad \forall a, \forall x \Rightarrow 11^x a + 11^x = 11^x a - 1$$

-1

$$11^x a = -1$$

$$a = -\frac{1}{11^x}$$

3

$$f(x_1) + f(x_2) = \sqrt{x_1} + \frac{1}{\sqrt{x_1}} + \sqrt{x_2} + \frac{1}{\sqrt{x_2}} + 1 \quad f(x) = \sqrt{x} + \frac{1}{\sqrt{x}} + 1$$

-2

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$$\left(\frac{1}{\sqrt{x_1}} \right) \frac{1}{\sqrt{x_1}} + \frac{1}{\sqrt{x_1}} + \frac{1}{\sqrt{x_1}} + 1 = \frac{1}{\sqrt{x_1}} + \frac{1}{\sqrt{x_1}} + \frac{1}{\sqrt{x_1}} + 1 = 3 + \frac{1}{\sqrt{x_1}} = 4 \Rightarrow \frac{1}{\sqrt{x_1}} = 1 \Rightarrow \sqrt{x_1} = 1 \Rightarrow x_1 = 1$$

$$f(x_1) + f(x_2) = 2\sqrt{4} + 1 = 2(\sqrt{4} + 1)$$

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$$2f(x) - 3f(-x) = 11^x - 11$$

$$2f(x) - 3f(-x) = 11^x - 11$$

$$2f(-x) - 3f(x) = 11^x + 11$$

$$-2f(x) + 3f(-x) = 11^x + 11$$

$$-2f(x) = 11^x + 11 - 3f(-x)$$

$$f(x) = -\frac{11^x}{2} - \frac{11}{2}$$

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$$2f(0) = 11 - 1$$

$$10f(0) = 11 - 11$$

-5

$$9f(0) = 11 + 11$$

$$11f(0) = 11 + 11$$

$$11f(0) = 11 \quad \boxed{f(0) = 1}$$

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$$x = -1 \rightarrow f(-1) + f(-1) = \frac{11 + 11 + 11}{-1}$$

-4

$$2f(-1) = -11$$

$$\boxed{f(-1) = -\frac{11}{2}}$$

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$$\xrightarrow{\text{مساوی}} -\sqrt{1}$$

$$f(x) = (x-1)\sqrt{1-x} \quad D_f = 1-x \geq 0 \quad x \leq 1$$

$$g(x) = -\sqrt{(1-x)^3} \quad (1-x)^3 \geq 0 \quad 1-x \geq 0 \quad x \leq 1$$

$$f(x) = x\sqrt{x} \quad D_f = x \geq 0$$

$$g(x) = \sqrt{x^3} \quad D_g = x \geq 0 \quad \xrightarrow{\text{مساوی}} \sqrt{x^3}$$

$$f(x) = [\sqrt{x} - \{\sqrt{x}\}] \quad D_f = x \geq 0$$

$$g(x) = \sqrt{x - |x|} \quad D_g = x \geq 0$$

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$$f(x) = \frac{x+1}{x-1} = \frac{3}{2} \quad g(x) = \frac{x+3}{x-3} \rightarrow \frac{0}{0} \text{ فرم نامعین}$$

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$$f(x) = x(1) = 0$$

$$f(x) = x^3 - 1 = 2 \quad x^3 = 3 \quad x = \sqrt[3]{3} \quad x^3 - 1 = -2 \quad x = \sqrt[3]{-1} = -1$$

$$x^3 - 1 = -1 \quad x = 0 \quad x^3 - 1 = 0 \quad x = 1 \quad x^3 - 1 = 3 \quad x = \sqrt[3]{4}$$

$$f(x) = |x| = 2 \quad x = \pm 2 \quad |x| = -1 \quad \text{X} \quad |x| = 0 \quad x = 0$$

$$|x| = -1 \quad \text{X} \quad |x| = 1 \quad x = \pm 1$$