

نام و نام خانوادگی: درس: پاسخنامه تشریحی تکلیف شماره ... کلاس ...

$$xf(x) \geq 0 \rightarrow \left. \begin{array}{l} f(x) < 0 \rightarrow [-5, 2] \\ f(x) > 0 \rightarrow [2, 5] \end{array} \right\} \rightarrow D_f = [-5, 5]$$

1

$$\frac{-x}{f(x)} \geq 0 \rightarrow (-5, 0) \cup (0, 2) \rightarrow \text{پاسخ: } (-5, 2)$$

2

$$f(x) - xf(x) = 5 - 4 + 5 \rightarrow -f(x) = 2 \rightarrow f(x) = -2$$

$$f(-2) - 2(-2) = (-2)^2 - 3(-2) + 5 = 4 + 6 + 5 = 15 \rightarrow f(-2) = 15$$

3

$$\left. \begin{array}{l} f(5) = 5 - \sqrt{4} = 3 \\ f(1) = 2(1) + 3 = 5 \end{array} \right\} \rightarrow \text{پاسخ: } 7$$

4

$$f(x-1) = a(x-1)^2 - b(x-1) + c = ax^2 - 2ax + a - b(x-1) + c$$

$$f(x-1) - f(x) = -2ax + a + b - 2ax + a + b = 4x + 2 \rightarrow -2a = 4 \rightarrow a = -2$$

$$a + b = 2 \rightarrow -2 + b = 2 \rightarrow b = 4$$

$$a - b = -2 - 4 = -6 \rightarrow \text{پاسخ: } -6$$

5

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

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

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

$$f'(x) = [f(x)]^x$$

$$f'(x) = (-1)^x = (-1)^x$$

$$\frac{f'(1) + 5}{1} = \frac{1 + 5}{1} = 6$$

6

$$f(x) = x^2(x) + 1 \rightarrow f(x) = 1^2$$

$$f(-x) = (-x)^2 \rightarrow f(-x) = x^2$$

$$f(x) = x^2(x) + 1 \rightarrow f(x) = x^2$$

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

7

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

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

$$\frac{4 - 2}{f(1) - x} = \frac{2}{1 - x} = 2$$

8

$$x = \sqrt{4} = 2 \quad x^2 + 2x = (\sqrt{4} - 2)^2 + 2(\sqrt{4} - 2) = 4 - 4\sqrt{4} + 4 + 2\sqrt{4} - 4 = -1$$

$$f(\sqrt{4} - 2) = \frac{-1 + 9}{-1 + 5} = \frac{8}{4} = 2$$

$$f(x) = \frac{x^2 + 2(x) + 9}{x^2 + 2(x) + 5} = \frac{x^2 + 2x + 9}{x^2 + 2x + 5} = \frac{11}{11} = 1$$

9

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

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

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

$$x^2 + \frac{1}{x^2} - (x^2 + \frac{1}{x^2}) = 0$$

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