

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

19.6

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

✓

$$\frac{-x}{f(x)} \geq 0 \rightarrow (-\infty, 0) \cup (0, 2) \rightarrow \text{حل اول: } x < 0$$

$$\frac{-x}{f(x)} \geq 0 \rightarrow \frac{-x}{x^2 - 2x + 1} \geq 0 \rightarrow \frac{-x}{(x-1)^2} \geq 0$$

حل اول: $x < 0$

حل دوم: $x > 2$

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

$$f(-2) - x(-2) = (-2)^2 - 2(-2) + 4 + f(-2) = 4 + 4 + 4 = 12 \rightarrow f(-2) = 12$$

✓

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

✓

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

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

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

✓

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

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

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

$$f'(-1) = [f(-1)]^{-1} = 1^{-1} = 1$$

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

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

✓

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

$$\frac{x^2(x) - x(x)}{x} \rightarrow \frac{x^3 - x^2}{x} = \frac{x^2(x-1)}{x} = x(x-1)$$

$$f(-2) = (-2)^2 = 4$$

$$f(2) = 2^2 = 4$$

✓

$$f(2) = 1 \rightarrow f(f(2)) = f(1) = 1$$

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

$$f(3) = 1 \rightarrow f(f(3)) = f(1) = 1$$

✓

$$x = \sqrt{4} = 2 \quad x^2 + 4x = (\sqrt{4} - 2)^2 + 4(\sqrt{4} - 2) = 4 - 4\sqrt{4} + 4 + 4\sqrt{4} - 8 = -1$$

$$f(\sqrt{3} - 2) = \frac{-1 + 9}{-1 + 5} = \frac{8}{4} = 2$$

$$f(2) = \frac{2^2 + 4(2) + 9}{2^2 + 4(2) + 5} = \frac{4 + 8 + 9}{4 + 8 + 5} = \frac{21}{17}$$

✓

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

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

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

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

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