

$x f(x) \geq 0$ (شماره) $\rightarrow 0, 2, 5, 5$ $\frac{-5}{-} \frac{0}{+} \frac{2}{-} \frac{5}{+}$ (۲)
 $\downarrow$ $\downarrow$ $\downarrow$ $\downarrow$
 0 -5 5
 (۱) $\cap$ (۲) $\rightarrow \underline{D_f = [-5, 0] \cup [2, 5]}$
 (۱) شکل $[-5, 5]$

$\frac{x}{f(x)} \geq 0$ (شماره) $\rightarrow 5, 2, 0, -3, 0$ $\frac{-3}{-} \frac{0}{+} \frac{2}{+} \frac{5}{-}$ (۲)
 $\downarrow$ $\downarrow$ $\downarrow$ $\downarrow$ $\downarrow$
 5 2 0 -3 0
 $(-3, 0) \cup (0, 2) \cup (5, +\infty)$
 (۱) $\cap$ (۲) $\rightarrow (-3, 0) \cup (0, 2) \rightarrow$ شامل ۳ عدد صحیح ۱ و ۰ و ۲ $\rightarrow$ (۱) $[-3, 5]$ = (۱) شکل

$f(x) - 2f(2) = x^2 - 3x + 4 \xrightarrow{x=2} f(2) - 2f(2) = (2)^2 - 3(2) + 4$
 $-f(2) = 2 \rightarrow \underline{f(2) = -2}$

$x = -2 \rightarrow f(-2) - 2f(2) = (-2)^2 - 3(-2) + 4$
 $f(-2) - 2(-2) = 14$
 $\underline{f(-2) = 10}$

$f(f(5)) + f(f(1))$ $f(1) \xrightarrow{1 < 3} 2(1) + 3 = 5$ $f(f(1)) = 2$
 $f(5) \xrightarrow{5 > 3} 5 - \sqrt{5+4} = 2$
 $f(5) \xrightarrow{5 > 3} 5 - \sqrt{5+4} = 2$ $f(f(5)) = 7$
 $f(2) \xrightarrow{2 < 3} 2(2) + 3 = 7$
 $2 + 7 = 9$

$f(x) = ax^2 - bx + 2$ $f(x-1) \rightarrow a(x-1)^2 - b(x-1) + 2 = ax^2 - 2ax + a - bx + b + 2$
 $f(x-1) - f(x) = ax^2 - 2ax + a - bx + b + 2 - (ax^2 - bx + 2) = -2ax + a + b$
 $-2ax + a + b = 4x + 2$
 $-2a = 4 \rightarrow a = -2$
 $a + b = 2 \rightarrow -2 + b = 2 \rightarrow b = 4$
 $a - b = -2 - 4 = -6$

$$\frac{y f(y) + f(-1)}{f'(y)}$$

$$\begin{cases} f(y) = (y)^y - y(y) + 1 = 1 \xrightarrow{y f(y)} 1 \times y = \textcircled{y} \\ f(-1) = (-1)^{-1} - y(-1) + 1 = \textcircled{A} \\ f(y) = (y)^y - y(y) + 1 = 1 \xrightarrow{\text{derivative}} \textcircled{1} \end{cases}$$

$$\frac{y+A}{1} = \underline{\underline{y}}$$

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$$\frac{y f(x) - y f(-y)}{f(y)}$$

$$\begin{aligned} f(x) &\xrightarrow{x=y} y(x) + 1 = 1y \xrightarrow{y f(x)} 1y \times y = \textcircled{y^2} \\ f(-y) &\xrightarrow{-y \times y} (-y)^y = x \xrightarrow{y f(-y)} y \times x = \textcircled{A} \\ f(y) &\xrightarrow{y=y} y(y) + 1 = \textcircled{V} \end{aligned}$$

$$\frac{y^2 - A}{y} = \underline{\underline{\frac{y^2}{y}}}$$

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$$\frac{f(f(x)) - f(f(y))}{f(1) - y}$$

$$\begin{aligned} f(x) &= 1 \rightarrow f(1) = \textcircled{y} \\ f(y) &= y \rightarrow f(y) = \textcircled{y} \\ f(1) &= \textcircled{y} \end{aligned}$$

$$\frac{\cancel{y} - \cancel{y}}{\cancel{y} - y} = \underline{\underline{0}}$$

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$$f(f(\sqrt{x-2})) \xrightarrow{u} u = \sqrt{x-2} \rightarrow u+2 = \sqrt{x}$$

$$u^y + x + A = (\underbrace{u+2}_{\sqrt{x}})^y + 1 \rightarrow u^y + x + A = y + 1 = \textcircled{x}$$

$$u^y + x + A = (u+2)^y + A \rightarrow u^y + x + A = y + A = \textcircled{A}$$

$$f(\sqrt{x-2}) = \frac{A}{x} = y$$

$$f(x) = \frac{y^y + x(y) + A}{y^y + (x) + A}$$

$$\frac{x + A + A}{x + A + A} = \underline{\underline{\frac{y^y}{1y}}}$$

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

$$(x^y + y + \frac{1}{x^y}) - (x^y + \frac{1}{x^y}) = \underline{\underline{y}}$$

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