

$$xf(x) \geq 0 \quad \begin{array}{c} -d \quad 0 \quad 2 \quad d \\ \hline \text{+} \quad \text{+} \quad \text{-} \quad \text{+} \end{array} = Df = [2, d] \cup [-d, 0]$$

$$\frac{-x}{f(x)} \geq 0, f(x) \neq 0 \Rightarrow \begin{array}{c} -3 \quad * \quad 2 \quad d \\ \hline \text{+} \quad \text{+} \quad \text{+} \quad \text{-} \end{array}$$

نقطه دار
ادامه داده

$$Df = [-2, 0) \cup (0, 2]$$

$$f(2) - 2f(2) = 2 \Rightarrow f(-2) - 2f(2) = 4 + 4 + 2$$

$$\rightarrow f_2 = 2 \quad \rightarrow f(2) = -2 \Rightarrow \underline{f(-2) + 4 = 12}$$

$$\hookrightarrow \underline{f(-2) = 1}$$

$$f(d-3) + f(d) = f(2) + d-3 = 2 + d-3 = 9$$

$$\Rightarrow f(x-1) - f(x) = d(x^2 - 2x + 1) - bx + 2 + b - (ax^2 - bx + 2)$$

$$\Rightarrow f(x-1) - f(x) = -2ax + b + a = 9x + 2$$

$$\Rightarrow -2a = 9 \rightarrow a = -\frac{9}{2}, b = d, a - b = -1$$

$$\left. \begin{aligned} f(x) &: x^p - 3x^{p+1} = 1 \\ f(-1) &: (-1)^p - 3(-1)^{p+1} = 1 \\ f(1) &: 1^p - 3 \cdot 1^{p+1} = -1 \end{aligned} \right\} \frac{x^{p+1} + d}{(-1)^p} = \underline{V}$$

$$\boxed{\text{further}} \Rightarrow \left\{ \begin{aligned} f(x) &= x^p + 1 = 1^p \\ f(-1) &= (-1)^p = 1 \\ f(1) &= 1^p + 1 = 2 \end{aligned} \right\} \frac{1^p - 1}{1} = \underline{0}$$

$$\begin{aligned} f(f(x)) &= y \\ f(f(1)) &= y \\ f(1) &= y \end{aligned} \Rightarrow \frac{y - y}{1} = 0$$

$$f(f(\sqrt{x-1})) = f\left(\frac{\sqrt{x-1}^p + d}{\sqrt{x-1}^{p+1}}\right)$$

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

$$\begin{aligned} (f(\sqrt{x}))^p &= x^p + \frac{1}{x^p} + 1 \Rightarrow (f(\sqrt{x}))^p - f(x) = \\ x^p + \frac{1}{x^p} + 1 - x^p - \frac{1}{x^p} &= \underline{1} \end{aligned}$$