

۲۰ / ۲۰

$$xf(x) \geq 0 \xrightarrow{Df} [-1 \ 0] \cup [2 \ 4]$$

۱. $f(x) \geq 0$ است
 ۲. $f(x) < 0$ است
 در تغییرات علامت باید دقت کرد
 مثبت است

✓ (۲)

$$\frac{-x}{f(x)} \rightarrow f(x) \neq 0 \rightarrow \begin{cases} x > 0 & f(x) < 0 \\ x < 0 & f(x) > 0 \end{cases} \Rightarrow Df \cdot (-2 \ 2) = \{0\}$$

همه وقت نباید علامت باشند

✓ (۲)

$$\begin{cases} f(-2) - 2f(2) = 14 \\ f(2) - 2f(-2) = 2 \end{cases} \rightarrow f(-2) = 14 - 2 \rightarrow f(2) = 10$$

✓ (۲)

$$\begin{aligned} f(1) &= 4 \\ f(4) &= 2 \\ f(x) &= 7 \end{aligned} \quad f(x) + f(4) \rightarrow 7 + 2 = 9$$

✓ (۲)

$$\begin{aligned} f(x-1) &= ax^2 - 2ax + a - bx + b + 2 \\ f(x-1) - f(x) &= -2ax + a + b - (-2ax + a + b + 2) \rightarrow -2ax + a + b = -2ax + a + b + 2 \rightarrow -2ax = 2x \\ -1 &= -2 \rightarrow a = 1 \end{aligned}$$

✓ (۲)

$\left. \begin{aligned} f(x) &= 9 - 2x + 1 \\ f(-1) &= 1 + 3 + 1 = 5 \\ f(x) &= 8 - 2x + 1 \end{aligned} \right\} \rightarrow \frac{x f(x) + f(-1)}{f'(x)} = \frac{x + 5}{1} = \underline{V}$ (P) ✓	6
$\left. \begin{aligned} f(x) &= 1x + 1 = 1x \\ f(-x) &= 8 \\ f(x) &= 4 + 1 = 5 \end{aligned} \right\} \rightarrow \frac{xq - 1}{v} = \frac{x1}{v}$ (P) ✓	7
$\left. \begin{aligned} f(x) &= 1 \\ f(1) &= 4 \\ f(x) &= x \\ f(x) &= 4 \end{aligned} \right\} \rightarrow \frac{f(1) - f(x)}{f(1) - x} \rightarrow \frac{4 - 4}{4 - x} = \frac{0}{f} = \underline{0}$ (P) ✓	8
$f(\sqrt{x}) = \frac{x - f\sqrt{x} + f + f\sqrt{x} - 1 + 9}{x - f\sqrt{x} + f + f\sqrt{x} - 1 + 1} = \frac{1}{f} = 2$ $f(x) = \frac{f + 1 + 9}{f + 1 + 1} = \frac{x1}{14}$ (P) ✓	9
$f(\sqrt{x}) = \left(x + \frac{1}{x}\right)^2 \rightarrow x^2 + x + \frac{1}{x^2} - x^2 - \frac{1}{x^2} = \underline{2}$ (P) ✓	10