

$$\frac{0}{+} \frac{0}{+} \rightarrow x f(x) \geq 0 \rightarrow \text{نقطه اول و سوم} = D_f = [-5, 0] \cup [2, 5]$$

سوال 1

$$\frac{-x}{f(x)} \geq 0, f(x) \neq 0 \rightarrow \frac{x \pm 3, 2, 5}{f(x)}$$

سوال 2

$$\begin{array}{c} (-) \times \\ \frac{-x}{f(x)} \rightarrow +, - \Rightarrow \begin{array}{c} + \\ - \end{array} \times \frac{+}{-} \Rightarrow D_f = (-3, 0] \cup (2, 5) \end{array}$$

2-1 و 2-2 و 2-3 و 2-4 صحیح

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

سوال 3

$$f(x) \neq x^2 = x^2 - 2x + 4 \Rightarrow (x=2) \Rightarrow f(2) = 2 + 4 \Rightarrow \underline{f(2) = 6}$$

سوال 4

$$\begin{aligned} f(1) \rightarrow (2 \times 1) + 3 &\Rightarrow \underline{5} \quad \{ f(5) = 5 - \sqrt{5+2} \Rightarrow \frac{2}{5} \text{ I} \} \rightarrow 2+2=4 \\ f(5) \rightarrow 5 - \sqrt{5+2} &= 2 \quad \{ f(2) = (2 \times 2) + 3 = 7 \text{ II} \} \end{aligned}$$

$$\begin{aligned} \text{if } m=2 \rightarrow f(1) - f(2) \quad f(m) = am^2 - bm + c \quad a - b + 2 - (4a - 2b + 2) &\Rightarrow a - b + 2 - 4a + 2b - 2 = b - 3a = 14 \quad (5) \\ \text{if } m=3 \rightarrow f(2) - f(3) \quad f(m) = am^2 - bm + c \quad 4a - 2b + 2 - (9a - 3b + 2) &\Rightarrow 4a - 2b + 2 - 9a + 3b - 2 = b - 5a = 20 \end{aligned}$$

$$\begin{aligned} -b + 3a = -14 \\ b - 5a = 20 \end{aligned} \Rightarrow -2a = 4 \rightarrow \underline{a = -2}, \underline{b = 18} \quad a - b \Rightarrow -2 - 18 \Rightarrow \underline{-20} \quad \text{بیس جابجایی}$$

سوال 6

$$\frac{0}{\text{بسیار صاف و صاف}} = \frac{(x+2)^2 + 1}{(x+2)^2 + 3} \Rightarrow \frac{(\sqrt{3})^2 + 1}{(\sqrt{3})^2 + 3} \rightarrow \frac{4}{4} \Rightarrow \underline{\frac{1}{1}}$$

$$\begin{aligned} f\left(n - \frac{1}{n}\right) &= n^2 + \frac{1}{n^2} \Rightarrow \left(n - \frac{1}{n}\right)^2 \rightarrow n^2 - \frac{2}{n} + \frac{1}{n^2} \Rightarrow f\left(\frac{n-1}{n}\right) = \left(n^2 - \frac{2}{n} + \frac{1}{n^2} - 3\right) + 2 = \frac{(n-1)^2 + 2}{n^2} \\ (-3)^2 + 2 &\rightarrow 11 \end{aligned}$$

سوال 8

$$4 - x^2 \Rightarrow (2-x)(2+x) \geq 0 \quad \frac{-x}{-x^2 + 4} \rightarrow [-2, 2]$$

$$\frac{0}{\text{استرک لایه های اول}} \rightarrow \left\{ \left(2, \frac{0}{\sqrt{5}}\right) \left(1, \frac{1}{\sqrt{5}}\right) \left(0, \frac{2}{\sqrt{5}}\right) \right\}$$

$$\frac{0}{\frac{9}{f}} \rightarrow \left\{ \left(2, \frac{\sqrt{5}}{0}\right) \left(1, \frac{\sqrt{5}}{-4}\right) \left(0, \frac{3}{2}\right) \right\} \rightarrow \left\{ \left(1, \frac{\sqrt{5}}{-4}\right) \left(0, \frac{3}{2}\right) \right\}$$

$$f(m) \rightarrow \{(2, 2) (3, 8) (-5, 4) (1, -4)\} \quad f(m)+1 \Rightarrow \{(2, 2) (3, 8) (-5, 3) (1, -1)\} \quad \text{سوال 19}$$

$$3f(m)+1 \rightarrow \{(2, 4) (3, 49) (-5, 13) (1, 13)\} \quad f(2m) \Rightarrow \{(4, 1) (6, 4) (-1, 2) (2, -2)\}$$

$$\text{استخراج بهای} \rightarrow \{(1, 4) (3, 2)\} = \text{سوال 10}$$