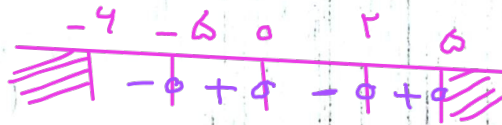


۱۸, ۲۵
 $n f(n) \geq 0 \Rightarrow \{n \mid f(n) \neq 0\} = [2, 5] \cup [-5, 0]$

$D_f = [0, 0] \cup [2, 5]$

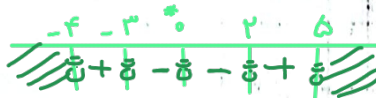


(۲)

$\frac{-n}{f(n)} \geq 0 \rightarrow \frac{n}{f(n)} \leq 0$

$\frac{-n}{f(n)} \geq 0, f(n) \neq 0$

$f(n) = 0 \rightarrow n \in \{1, 2, 3, 4, 5\}$



حالت اول: $f(n) < 0, n > 0$

حالت دوم: $f(n) > 0, n < 0$

$\frac{-n}{f(n)} \geq 0 \rightarrow n \in (-5, 0) \cup (2, 5) \quad D_f = (-5, 2) \cup (5, \infty)$

$n \in \{-2, -1, 4, 5\}$

۲۵

$f(2) - 2f(2) = 2$

$f(2) = -2$

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

$f(-2) = 4 + 4$

$f(-2) = 10$

(۲) ✓

$f(0) = 0 - 0 = 0$

$f(2) = 0$

$f(1) = 0$

$V + 2 = 9$

(۲) ✓

$f(n-1) = a(n-1) - b(n-1) + 2 = a(n^2 - 2n + 1) - b(n-1) + 2 = an^2 - 2an + a - bn + b + 2$

$f(n-1) - f(n) = an^2 - 2an + a - bn + b + 2 - (an^2 + bn - 1) = -2an + a + b + 1$

$-2a = 2$

$a = -1 \Rightarrow b = 1$

$a - b = -2 = -2$

(۲) ✓

$$\left. \begin{aligned} f(1) &= 9 - 9 + 1 = 1 \Rightarrow f(f(1)) = 9 \\ f(-1) &= 1 + 9 + 1 = 11 \\ f(2) &= 9 - 9 + 1 = 1 \Rightarrow f(f(2)) = 9 \end{aligned} \right\}$$

$$\frac{1+0}{1} = 1$$

✓

$$\left. \begin{aligned} f(1) &= 11 - 1 = 10 \Rightarrow f(f(1)) = 1 \\ f(-1) &= 1 \Rightarrow f(f(-1)) = 1 \\ f(2) &= 9 + 1 = 10 \end{aligned} \right\}$$

$$\frac{10-1}{1} = 9$$

✓

$$\frac{9-9}{f(9-9)} = \frac{0}{f} = 0$$

$f \rightarrow 1 \rightarrow 9 \rightarrow f(f(1)) = 9$
 $f \rightarrow 2 \rightarrow 9 \rightarrow f(f(2)) = 9$
 $f \rightarrow 4 \rightarrow f(1) = 9$

✓

$$\frac{(n+1)^r + 0}{(n+1)^r + 1}$$

$$\frac{14+0}{14+1} = \frac{14}{15} \rightarrow \text{قریب}$$

$$\frac{(\sqrt{r})^r + 0}{(\sqrt{r})^r + 1} = \frac{1}{r} = \frac{1}{2}$$

✓

$$\begin{aligned} (\sqrt{m})^r + \frac{1}{(\sqrt{m})^r} &= m + \frac{1}{m} \\ (f(\sqrt{m}))^r &= \left(m + \frac{1}{m}\right)^r = m^r + \frac{1}{m^r} + r \end{aligned}$$

$$m^r + \frac{1}{m^r} + r - m^r - \frac{1}{m^r} = r \rightarrow \text{قریب}$$

✓