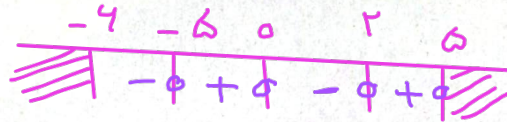


19.5
 $D_f = [-5, 0] \cup [2, 5]$



بیا هم n هم $f(n)$ در دو هم علامت $\pm$ دارند یا نه؟
 بیا هم n هم $f(n)$ در دو هم علامت $\pm$ دارند یا نه؟

2

$D_f = (-3, 0) \cup (0, 2)$

بیا هم $f(n)$ هم n در دو هم علامت $\pm$ دارند یا نه؟
 بیا هم $f(n)$ هم n در دو هم علامت $\pm$ دارند یا نه؟



2

$f(2) - 2f(2) = 2^2 - 3 \times 2 + 2$

$f(n) - 2 \times (2) = n^2 - 3n + 2$

$-f(2) = 2$

$f(n) = n^2 - 3n$

$f(2) = -2$

$f(-2) = (-2)^2 - 3 \times (-2)$

$f(-2) = 10$

2 ✓

$f\left(\frac{1}{2}\right) + f\left(\frac{1}{5}\right) = 9$

$f(n) = \begin{cases} 2 - \sqrt{n+2} & n > 2 \\ 2n+3 & n \leq 2 \end{cases}$

$|x| + 3 = 5$

$5 - \sqrt{5+2} = 2$

$2 \times 2 + 3 = 7$

1.75

✓

المسألة

$$f(n-1) = a(n-1)^r - b(n-1) + r$$

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

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

$$f(n-1) - f(n) = -ran + b + a$$

$$-ran + b + a = 4n + r$$

$$a = -r \quad b = a$$

$$a - b = -r - a = -1$$

$$f(n) = n^r - rn + 1$$

$$9 - 9 + 1 = 1$$

$$1 + 3 + 1 = 5$$

$$5 - 9 + 1 = -1$$

$$\frac{r f(r) + f(-1)}{f(r)} = 9 \checkmark$$

لنوجد

$$\frac{r f(r) - r f(-r)}{f(r)} = \frac{r}{r}$$

$$r \times r + 1 = 1r$$

$$(-r)^r = r$$

$$r \times r + 1 = r$$

$$f(n) = \begin{cases} rn + 1 & n > r \\ n^r & n \leq r \end{cases}$$

لنوجد ✓

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

لنوجد ✓

$$f(f(\sqrt{r-1})) =$$

$$\frac{(\sqrt{r-1})^r + r \times (\sqrt{r-1}) + 9}{(\sqrt{r-1})^r + r \times (\sqrt{r-1}) + 9} = \frac{r + r - r\sqrt{r-1} + r\sqrt{r-1} - 1 + 9}{r + r - r\sqrt{r-1} + r\sqrt{r-1} - 1 + 9} = \frac{8}{8} = 1$$

لنوجد ✓

$$f(r) = \frac{r^2 + r \times r + 9}{r^2 + r \times r + 9} = \frac{r}{1}$$



9

$$f(\sqrt{n}) = n + \frac{1}{n}$$

$$(n + \frac{1}{n})^2 = n^2 + \frac{1}{n^2} + 2 = n + \frac{1}{n}$$

$$n^2 + \frac{1}{n^2} + 2 - n^2 - \frac{1}{n^2} = 2$$

(2)



1=