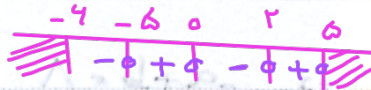


1. $y = f(x) \rightarrow [-4, 5]$ نادر

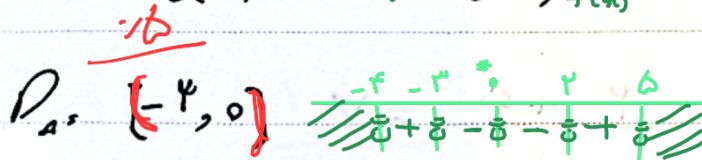
$y = \sqrt{x(f(x))} \rightarrow xf'(x) \geq 0 \rightarrow D_f = [2, 5]$

۱- برای آنکه نبرادیکال مثبت تریا مساوی صفر باشد باید x و $f(x)$ هم علامت باشند، پس:



2. $D_y = [-5, 0] \cup [2, 5]$

$y = \sqrt{\frac{-x}{f(x)}} \rightarrow \frac{-x}{f(x)} \geq 0 \rightarrow -x \geq 0 \rightarrow x \leq 0$



حالت اول: $f(x) < 0$ و $x > 0$

حالت دوم: $f(x) > 0$ و $x < 0$

$D_y = (-2, 2) - \{0\}$

3. $f(x) - 2f(2) = x^2 - 4x + 4$

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

$f(-2) + 4 = 4 + 4 + 4 = 12 \Rightarrow f(-2) = 12$ د

4. $f(f(1)) \rightarrow f(5) \rightarrow 2$

$2(1) + 3 = 5$

$5 - \sqrt{5+4} = 2$

$\Rightarrow v + 2 = 9$

$f(f(5)) \rightarrow v$

$$f(n) = an^r - bn + r$$

$$n=1$$

$$f(n-1) - f(n) = 4n + r$$

$$r - a + b - r = 4 + r \rightarrow -a + b = 4 \Rightarrow a - b = -4$$

$$f(n) = n^r - 4n + 1$$

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

$$\frac{r f(r) - r f(-r)}{f(r)} = \frac{r^2 - 1}{r} = \frac{r-1}{r}$$

$$f = \{(1, 4), (2, 2), (3, 1), (4, 0)\}$$

$$\frac{f(f(r)) - f(f(r))}{f(1) - r} = \frac{4 - 4}{r} = 0$$

$$f(n) = \frac{n^r + rn + 9}{n^r + rn + 9} \Rightarrow$$

9 1

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

(r) ✓

$$\frac{\cancel{r+r} - \cancel{r}\sqrt{r} + \cancel{r}\sqrt{r} - A + 9}{\cancel{r+r} - \cancel{r}\sqrt{r} + \cancel{r}\sqrt{r} - A + 9} = \frac{1}{r} = r \Rightarrow$$

5

$$f(r) = \frac{r + 1 + 9}{r + 1 + 9} = \frac{r+1}{10}$$

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

10

$$(f(\sqrt{n}))^r - f(n) =$$

(r) ✓

$$n^r + \frac{1}{n^r} + r - n^r - \frac{1}{n^r} = \boxed{r}$$

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