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$y = \sqrt{n \cdot f(n)}$ $n \frac{2}{1+}$

$n \cdot f(n) \geq 0$

$\begin{cases} [-4, 0] & n \leq 0 \\ [2, 5] & n \geq 0 \end{cases}$

باین صنفه بخندن

۲

$y = \sqrt{\frac{-n}{f(n)}}$

$f(n) > 0$

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

$\begin{cases} (-2, 0) & n < 0 \\ (2, 5) & n > 0 \end{cases}$

باین صنفه ↓

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$f(n) - 2f(2) = n^2 - 2n + 4$ $f(-2)$

$f(2) - 2f(2) = 4 - 6 + 4$ $f(n) = (-4) - 4 + 6 + 4$

$-f(2) = 2$ $f(n) = 4 + 6 + 4 - 4$

$f(2) = -2$ $f(-2) = 10$

✓

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$f(n) = \begin{cases} n - \sqrt{n+4} & n > 3 \\ 2n+3 & n \leq 3 \end{cases}$

$f(0) = 0 - \sqrt{0+4} = -2$

$f(2) = 2(2)+3 = 7$

$f(1) = 2(1)+3 = 5$

$f(0) = 0 - \sqrt{0+4} = -2$

$f(f(0)) + f(f(1)) = 7 + 2 = 9$

✓

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

$f(n-1) - f(n) = 4n+2$ $f(n-1) = an^2 + a - 2na - bn + b + 2$

$an^2 + a - 2na - bn + b + 2 - an^2 - bn = 4n+2$

$-2na - bn + a + b = 4n+2$

ناقص

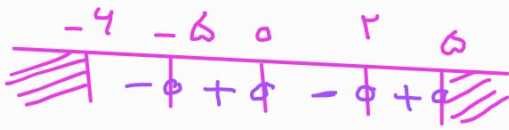
$a-b = 4n + 2na + 2bn$

✓

$-2an + a + b = 4n + 2 \rightarrow \begin{cases} -2a = 4 \rightarrow a = -2 \\ a + b = 2 \rightarrow b = 4 \end{cases} \rightarrow a-b = -6$

$F(a_n) = a_n^r - r a_n + 1$ $\frac{r f(r) + f(-1)}{f'(r)}$	$f(r) = 9 - 9 + 1 = 1$ $f(-1) = 1 + 1 + 1 = 3$ $f'(r) = r - 9 + 1 = -8$ $\left. \frac{r+3}{1} \right\}$	✓
$F(a_n) = \begin{cases} r a_n + 1 & n \geq r \\ a_n^r & n < r \end{cases}$ $\frac{r f(r) - r f(-r)}{f(r) r a_n + 1}$	$f(r) = r(r) + 1 = r^2$ $f(-r) = r(-r) + 1 = -r^2$ $f(-r) = (-r)^r = -r^r$ $\left. \frac{(r^2 - (-r^r))}{r^2} \right\}$	✓
$F = \{(r, 9), (9, r), (r, 1), (1, 9)\}$ $\frac{f(f(r)) - f(f(r))}{f(1) - r}$	$\frac{9 - 9}{9 - r} = \frac{0}{r} = 0$	✓
$F(n) = \frac{n^r + r a_n + 9}{n^r + f n + 8}$ $f(f(\sqrt{r} - r)) = \frac{r + r - r \sqrt{r} + r \sqrt{r} + 1}{r + r - r \sqrt{r} + r \sqrt{r} - r} = \frac{1}{r}$ $f(r) = \frac{r + 1 + 9}{r + 1 + 8} = \frac{r+1}{10}$	$f(\sqrt{r} - r) = \frac{(\sqrt{r} - r)^r + r \sqrt{r} - 1 + 9 + 1}{(\sqrt{r} - r)^r + r \sqrt{r} - 1 + 8 - r}$	✓
$f(n) = n^r + \frac{1}{n^r}$ $(f(\sqrt{n}))^r - f(n)$ $n^r + \frac{1}{n^r} + r - n^r - \frac{1}{n^r} = r$	$f(\sqrt{n}) = \sqrt{n}^r + \frac{1}{\sqrt{n}^r} = n + \frac{1}{n} \quad n \geq 0$ $(n + \frac{1}{n})^r = n^r + \frac{1}{n^r} + r$	✓

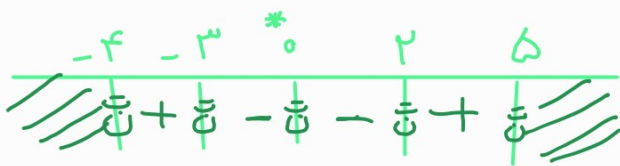
۱- برای آنکه زیرادیکال نزدیک‌ترین مسافتی صفر باشند باید x و $f(x)$ هم علامت باشند، پس:



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

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



$$D_y = (-3, 2) - \{0\}$$

حالت اول: $f(x) < 0$ و $x > 0$

حالت دوم: $f(x) > 0$ و $x < 0$