

$y = f(x)$
 $x - f(x) > 0$

تین صفت

$y = \sqrt{x - f(x)}$

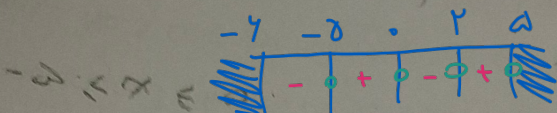
$x \geq 0$

10

اشیاء

4

1, 0



$f(x) > 0$

$x \leq 0$

$f(x) \leq 0$

$r \leq x \leq a \rightarrow D_f = [-a, 0] \cup [r, a]$

2

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

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

1, 0

$D_f = [-r, r] \cup [r, a]$

$f(x) - rf(r) = x^r - r^r x + r$

$x=r \rightarrow f(r) - rf(r) = \frac{r}{r} - r + r = 0$

3

$f(-r) = ?$

$-f(r) = r$

$f(r) = -r$

$x = -r$

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

✓

$f(-r) = 10$

$f(f(a)) + f(f(r)) = r + r = 9$

5

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

$f(r) = r + \frac{r}{r} = a$

$f(r) = r + \frac{r}{r} = v$

$f(a) = r$

$f(x)$

$f(n-1) - f(n) = an^r - ran + a - bn + b + r - an^r + bn - r = 4n - r$

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

$b = a \rightarrow a - b = -r - 0 = -r$

6

$f(x) = \frac{x^r + rx + a}{x^r + rx + v}$

$\frac{(x^r - r) + r(x - a) + a}{(x^r - r) + r(x - a) + v} = \frac{v - a + a}{v - a + v} = \frac{r}{v} = \frac{r}{r}$

$(x - \frac{1}{x})^r$

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

$x^r + \frac{1}{x^r} = (x^r + \frac{1}{x^r} - r) + r$

1, 0

$\frac{x^r + 1}{x^r} = x^r + \frac{1}{x^r} = (x - \frac{1}{x})^r - r$

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

$f(r) = r^r - r = 9$

$f(n) = x^r + r$

الف) $\frac{f}{g} = D_f \cap D_g - \{x / g(x) = 0\} \Rightarrow \{(0, \frac{2}{\sqrt{2}}), (1, \frac{-4}{\sqrt{2}}), (1, 0)\}$
 $D_f = \{-\sqrt{2}, \sqrt{2}\} \cap D_g \{0, 1, 2, \sqrt{2}\} \rightarrow (1, \frac{0}{\sqrt{2}})$

$g(x) = \sqrt{9-x^2} \rightarrow 9-x^2 \geq 0 \rightarrow 9 \leq x^2 \rightarrow -3 \leq x \leq 3$

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

$\frac{f}{g}(1) = (1, \frac{-4}{\sqrt{2}})$

$g(1) = \sqrt{9-1} = \sqrt{8} = 2\sqrt{2}$

ب)

$D_{\frac{f}{g}} = D_f \cap D_g - \{x / f(x) = 0\} = \{0, 1, 2\} - \{0, \pm\sqrt{2}\}$

$\frac{g}{f}(1) = (1, \frac{2\sqrt{2}}{-2})$

$(0, \frac{\sqrt{2}}{2}), (1, \frac{-\sqrt{2}}{2}), (2, \frac{\sqrt{2}}{2})$

الف) $2f(x) = \{(2, 2), (2, 2), (-2, 4), (2, 4)\}$

ب) $f(x)+1 = \{(2, 2), (2, 2), (-2, 3), (2, 3)\}$

ج) $3f^2(x)+1 = \{(2, 4), (2, 4), (-2, 13), (2, 13)\}$

د) $f(2x) = \{(1, 1), (2, 2), (-1, 2), (1, -2)\}$

الف) $f-g = \{(2, 2), (1, 4), (2, 2)\}$

ب) $\frac{2f}{g} = \{(2, 4), (1, 1), (2, -2)\}$

تعبیر نیست