

$$\frac{n-1}{n} - \frac{n}{n-1} \geq 0$$

$$\frac{(n-1)^2 - n^2}{n(n-1)} \geq 0 \rightarrow \frac{n^2 - 2n + 1 - n^2}{n(n-1)} = \frac{-2n+1}{n(n-1)} \geq 0$$

$$D_y = (-\infty, 0) \cup \left[\frac{1}{2}, 1\right]$$

$$b) f(n) = \frac{\frac{1}{n+1} - \frac{2}{n}}{\frac{2}{n-1} + \frac{1}{n+2}} = \frac{-\frac{2n-2}{n(n+1)}}{\frac{2n+2}{(n-1)(n+2)}} \rightarrow n \neq 0, -1$$

$$D = \mathbb{R} - \left\{-2, -\frac{2}{2}, -1, 0, 1\right\} \quad (n-1)(n+2)$$

$$a) \left(\frac{1}{n} - 1\right) (n^2 - 2n) \geq 0$$

$$\frac{-1}{n} \quad \frac{2}{n} \quad (-\infty, -2] \cup \left[\frac{2}{n}, +\infty\right)$$

$$b) \sqrt{x-1} + \sqrt{y+1} = n$$

$$\sqrt{y+1} = n - \sqrt{x-1} \quad n - \sqrt{x-1} \geq 0$$

$$D_y = [1, 12]$$

$$n-1 \leq 12 \Rightarrow n \leq 13$$

$$n^2 - n - 2 \geq 0 \quad (n-2)(n+1) \geq 0 \quad \frac{-1}{n} \quad \frac{2}{n}$$

$$\sqrt{n^2-1} \rightarrow n^2-1 \geq 0 \quad n^2 \geq 1 \quad \frac{-1}{n} \quad \frac{2}{n}$$

$$D_y = (-\infty, -1] \cup [1, +\infty) \cap (-\infty, -1) \cup (2, +\infty) = (-\infty, -1) \cup (2, +\infty)$$

$$-x^2 + ax + r > 0$$

$$\frac{-r}{-b} \quad \frac{b}{-b}$$

-r

$$-r = -b$$

$$r = b$$

$$(x+r) \cdot (x-b) = x^2 - ax - r$$

$$b = \frac{+r}{r} \Rightarrow a = \frac{-1}{r} \quad a+b = -r$$

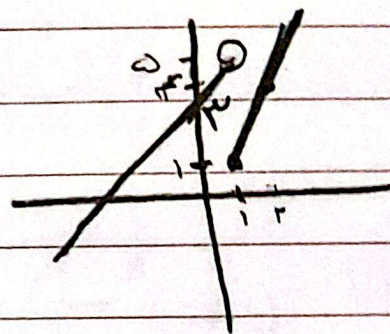
$$\frac{-1}{r} + \frac{r}{r} = \frac{r-1}{r} = 1$$

$$f(x) = \begin{cases} rx - r & x > 1 \\ rx + r & x < 1 \end{cases}$$

-a

$$g(x) = \sqrt{f(x) - x} \quad f(x) - x > 0$$

$$Dg = [-r, +\infty) \quad f(x) > x$$



$$f(x) = \begin{cases} (a+1)(x+r) & x > 1 \\ ra + rx & x < 1 \end{cases}$$

-f

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

$$a = \omega \Rightarrow r(a+1)(a+r) = ra + r(-r) + a$$

$$\Rightarrow r(a+1)r = ra - r$$

$$1 \cdot a = -1 \quad a = -1$$

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$$f(x - \sqrt{x}) + f(x + \sqrt{x})$$

$$= \sqrt{x - \sqrt{x}} + \frac{1 \times \sqrt{x + \sqrt{x}}}{\sqrt{x - \sqrt{x}} \times \sqrt{x + \sqrt{x}}} + \sqrt{x + \sqrt{x}} + \frac{1 \times \sqrt{x - \sqrt{x}}}{\sqrt{x + \sqrt{x}} \times \sqrt{x - \sqrt{x}}} + x + x$$

$$\sqrt{x - \sqrt{x}} + \sqrt{x + \sqrt{x}} + \sqrt{x + \sqrt{x}} + \sqrt{x - \sqrt{x}} + x$$

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

$$2(\sqrt{x - \sqrt{x}} + \sqrt{x + \sqrt{x}}) + x = 2\sqrt{x} + x$$

$$\frac{2 - \sqrt{x} + x + \sqrt{x} + x}{(\sqrt{x - \sqrt{x}} + \sqrt{x + \sqrt{x}})^2}$$

-1

$$xf(x) - pf(-x) = rx - x$$

$$\begin{aligned} \xrightarrow{x=x} & \quad (xf(x) - pf(-x) = rx - x) \times r \\ \xrightarrow{x=-x} & \quad (-pf(x) + rf(-x) = r(-x) + x) \times r \end{aligned}$$

$$\begin{cases} rf(x) - pf(-x) = rx - x \\ -pf(x) + rf(-x) = -rx + x \end{cases}$$

$$-pf(x) = rx - x$$

$$f(x) = -\frac{rx - x}{p}$$

(9)

$$(x+r)f(x) - px f(x+r) = rx^r - mx + pm - 1$$

(10)

$$\xrightarrow{x=0} \quad rf(0) = pm - 1$$

$$\xrightarrow{x=-r} \quad pf(0) = r(-r)^r - m(-r) + pm - 1 = 1 + pm$$

$$1 + pm = pf(pm-1) = pm - r$$

$$pm = 1 \quad m = \frac{1}{r}$$

$$f(x) = \frac{rx}{p}$$

$$10) \quad f(x) + f\left(\frac{1}{x}\right) = \frac{rx^r - 1rx + r}{x}$$

$$ax + b + \frac{a}{x} + b = \frac{ax^r + rb}{x} + a = \frac{rx^r - 1rx + r}{x}$$

$$\Rightarrow a = r, b = -1$$

$$f(-1) = rx - 1 \quad \xrightarrow{x=-1} \quad -r - 1 = -1$$