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$$a) y = \frac{n+r}{r^2+r^2-n+r}$$

$$\frac{n+r}{(n-1)(n-\frac{1}{r})(n+r)}$$

$$\frac{r^2+r^2-n+r}{-r^2+r^2} \cdot \frac{n-1}{r^2+n-r}$$

$$\frac{-r^2-n+r}{-r^2+n}$$

$$\frac{-r^2+n}{r^2+n}$$

$$\frac{-\Delta \pm \sqrt{\Delta^2 + 4r^2}}{r} \Rightarrow \frac{-\Delta - V}{r} = -r$$

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

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$$D_y = R - \left\{ 1, \frac{1}{r}, -r \right\}$$

$$b) y = \frac{n+r}{r^2+9r^2+1-n+r}$$

$$\frac{n+r}{(n+1)(n+r)(n+\frac{1}{r})}$$

$$\frac{r^2+9r^2+1-n+r}{-r^2-r^2} \cdot \frac{n+1}{r^2+Vn+r}$$

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

$$\frac{r^2+n}{-r^2-r^2}$$

$$\frac{-V \pm \sqrt{V^2 + 4r^2}}{r} \Rightarrow \frac{-V+D}{r} = -\frac{1}{r}$$

$$\frac{-V-D}{r} = -r$$

$$D_y = R - \left\{ -1, -r, -\frac{1}{r} \right\}$$

$$a) y = \frac{n+r}{n^2-r^2+r^2-n-1}$$

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

$$\frac{r^2-r^2+r^2-n-1}{-r^2+r^2} \cdot \frac{n-1}{n^2-n+1}$$

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

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

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$$D_y = R - \{1\}$$

$$b) y = \sqrt{\frac{n+r}{n^2-r^2+r^2-n-1}} = \sqrt{\frac{(n+r)}{(n-1)(n^2-n+1)}}$$

$$\frac{-r}{+r} = \frac{1}{+r} \Rightarrow D_y = (-\infty, -r] \cup (1, \infty)$$

$$y = \frac{r}{n^2-d|n-1|-r^2+d}$$

$$\frac{r^2+d-n-d-r^2+d}{n^2+r^2} \cdot \frac{1}{n^2-Vn+1}$$

$$\frac{r^2+d-n-d-r^2+d}{n^2+r^2}$$

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

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$$R - \{0, -r, r, d\}$$

$$a) y = \frac{n+r}{|r^2+n+1|-|n+r|}$$

$$|r^2+n+1|-|n+r| \neq 0$$

$$|r^2+n+1|-|n+r| = 0 \Rightarrow |r^2+n+1| = |n+r| = r^2+r^2+1 = n^2+4n+9$$

$$\Rightarrow r^2-r^2-n-1 = 0 \Rightarrow \frac{r \pm \sqrt{r^2+4r}}{4}$$

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$$D_y = R - \left\{ -\frac{r}{2}, r \right\}$$

$$\frac{r+1}{4} \cdot r^2 \cdot |d|-|d| \leq 0$$

$$\frac{r-1}{4} = -\frac{1}{4} \Rightarrow -\frac{r}{r} \Rightarrow \left| -\frac{1}{2}+1 \right| - \left| -\frac{r}{2}+1 \right| \leq \frac{d}{2} - \frac{d}{2} \Rightarrow$$

$$b) y = \sqrt{|2n+1| - |n+2|}$$

$$|2n+1| - |n+2| \geq 0 \Rightarrow |2n+1| \geq |n+2| \xrightarrow{\text{مربع}}$$

$$4n^2 + 4n + 1 \geq n^2 + 4n + 4 \Rightarrow 3n^2 - 2n - 3 \geq 0$$

$$\frac{-\frac{-2}{6} \pm \sqrt{\frac{4}{36} + 12}}{2 \cdot 3} \rightarrow D_y = (-\infty, -\frac{1}{2}] \cup [2, +\infty)$$

$$\frac{1 \pm \sqrt{5+9}}{4}$$

$$a) y = \log_r(1 - \log_r^n)$$

$$(n > 0) \quad 1 - \log_r^n > 0 \Rightarrow \log_r^n < 1 \Rightarrow n < 3$$

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$$D_y = (0, 3)$$

$$b) y = \log_r(1 - \log_{\frac{1}{r}}^n)$$

$$n > 0 \quad 1 - \log_{\frac{1}{r}}^n > 0 \Rightarrow \log_{\frac{1}{r}}^n < 1 \Rightarrow n > \frac{1}{r}$$

$$D_y = (\frac{1}{r}, +\infty)$$

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$$f(n) = \sqrt{\log_{0.10} \log_{0.10}^{(2n-1)}}$$

$$2n-1 > 0 \Rightarrow n > \frac{1}{2}$$

$$\log_{0.10}^{(2n-1)} > 0 \Rightarrow 2n-1 > 1 \Rightarrow n > 1$$

$$\log_{0.10} \log_{0.10}^{(2n-1)} \geq 0 \Rightarrow \log_{0.10}^{(2n-1)} \leq 1 \Rightarrow 2n-1 \leq 10 \Rightarrow n \leq 3$$

$$D_f = (1, 3]$$

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$$a) y = \log(2 \cos n + 1)$$

$$2 \cos n + 1 > 0 \Rightarrow 2 \cos n > -1 \Rightarrow \cos n > -\frac{1}{2}$$

$$D_y = (2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3})$$

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

$$\frac{n-1}{n+1} > 0 \Rightarrow \frac{-1}{+1} > -1 \Rightarrow (-\infty, -1) \cup (1, +\infty)$$

$$\log \frac{n-1}{n+1} \geq 0 \Rightarrow \frac{n-1}{n+1} \geq 1 \Rightarrow \frac{n-1-n-1}{n+1} \geq 0 \Rightarrow \frac{-2}{n+1} \geq 0 \Rightarrow \frac{-1}{+\frac{1}{2}} = (-\infty, -1)$$

$$\rightarrow (-\infty, -1)$$

$$f(n) = \sqrt{(a+2)n^2 + an + b}$$

$$a+2 > 0 \Rightarrow a > -2$$

$$\lim_{n \rightarrow \infty} \mu \quad an + b > -2n + b \Rightarrow -4 + b > 0 \Rightarrow b > 4$$

اگر سهمی باشد درجه 2 معادله داشته باشد در طرف 2 به تعریف است یا نه
اگر سهمی باشد درجه 1 معادله نداشته باشد
نسبت سهمی نسبت

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$$f(n) = \sqrt{n^2 + 2n + 2 - m^2} \stackrel{n \geq 1}{=} \sqrt{2n + 2 - m^2}$$

$$\Delta \leq 0 \Rightarrow r - f(r - m^2) \leq 0$$

$$r - 1 + fm^2 \leq 0 \Rightarrow fm^2 - r \leq 0$$

$$f(m^2 - 1) \leq 0 \Rightarrow m^2 - 1 \leq 0$$

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$$\frac{-1}{+1} = \frac{1}{-1} \quad [-1, 1]$$

$$1 - (-1) = 2$$

$$f(n) = \frac{\sqrt{r - n^2}}{[n] + [-n] + 1} \rightarrow (r - n)(r + n) \quad \frac{-r}{-1 + 1} \quad [-r, r]$$

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$$[n] + [-n] + 1 \rightarrow [n] + [-n] + 1 \neq 0$$

$$[n] + [-n] \neq -1 \rightarrow n \in \mathbb{Z}$$

$$\rightarrow D_f = \{-r, -1, 0, 1, r\} \rightarrow \sum_{k \in D_f} \omega$$

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