

$$a=2 \rightarrow 2a+b > 0 \rightarrow 4+b > 0 \rightarrow b > -4$$

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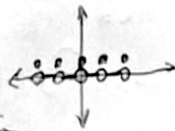
$$D_f = \mathbb{R} \rightarrow \Delta < 0 \rightarrow f - f(r-m^2) < 0 \rightarrow 1 - r + m^2 < 0 \rightarrow m^2 < 1 \rightarrow -1 < m < 1$$

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

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

$$\begin{cases} 1 & n \in \mathbb{Z} \\ 0 & n \notin \mathbb{Z} \end{cases} \Rightarrow x \in \mathbb{Z} / \mathbb{I}$$



$$I \cap II \Rightarrow D_f = \{x \in \mathbb{Z}, -2 \leq x \leq 2\}$$

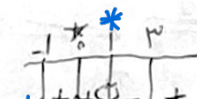
$$\sqrt{f-n^2} \rightarrow f-n^2 > 0 \rightarrow f > n^2 \rightarrow -2 \leq n \leq 2$$

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$$y = \sqrt{x^3 + 2x^2} \rightarrow x^3 + 2x^2 > 0 \rightarrow x^2(x+2) > 0 \rightarrow x > -2 \rightarrow D_y = (-2, +\infty)$$

$$g = \sqrt{\frac{(x^3-1)(x^3-2x^2)}{x^3-1}}$$

$$\rightarrow (x^3-1)(x^3-2x^2) > 0$$



$$D_f = (-\infty, -1] \cup \{0\} \cup [2, +\infty)$$

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

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$$y = \sqrt{|x-2|-2} \rightarrow |x-2| > 2 \rightarrow \begin{cases} x-2 > 2 \rightarrow x > 4 \\ x-2 \leq -2 \rightarrow x \leq -1 \end{cases}$$

$$D_y = (-\infty, -1] \cup [4, +\infty)$$

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

$$1-x-2x^2 > 0 \rightarrow |x-2| < 2 \rightarrow -2 < x-2 < 2 \rightarrow -4 < x < 4 \rightarrow -2 < x < 2$$

$$D_f = [-2, 2]$$

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$\text{ad) } |-x| \geq 0 \rightarrow x|x| \leq 1 \rightarrow \begin{cases} \rightarrow (x=0) \rightarrow 1 \geq x \rightarrow -1 \leq x \leq 1 \rightarrow x \in [-1, 1] \text{ ①} \\ \rightarrow (x < 0) \rightarrow \cancel{x|x|} \text{ ②} \end{cases}$

b) $\left\{ \begin{array}{l} \sqrt{1-\alpha} |0\rangle + \sqrt{\alpha} |1\rangle \rightarrow \sqrt{1-\alpha} |0\rangle + \sqrt{\alpha} |1\rangle \rightarrow \sqrt{1-\alpha} |0\rangle + \sqrt{\alpha} |1\rangle \rightarrow \sqrt{1-\alpha} |0\rangle + \sqrt{\alpha} |1\rangle \\ \sqrt{1-\alpha} |0\rangle - \sqrt{\alpha} |1\rangle \rightarrow \sqrt{1-\alpha} |0\rangle - \sqrt{\alpha} |1\rangle \rightarrow \sqrt{1-\alpha} |0\rangle - \sqrt{\alpha} |1\rangle \rightarrow \sqrt{1-\alpha} |0\rangle - \sqrt{\alpha} |1\rangle \end{array} \right.$ $D_F = [Y, N] = \{Y, V\}$

$$y = \frac{\sin^2 \theta - 1}{\cos \theta} \rightarrow \cos \theta \neq 0$$


 $k\pi + \frac{\pi}{2}$

$$D_y = \mathbb{R} - \left\{ \cancel{k\pi} + \frac{\pi}{2} \right\}$$

$f(z) = \frac{\cos z}{r \cos z - 1} \rightarrow r \cos z - 1 \neq 0$
 $\cos z \neq \frac{1}{r}$

$$|r_{n+1}| - |r_n| > 0 \rightarrow (r_{n+1})^r > (r_n)^r \rightarrow r_{n+1}^r > r_n^r + r_n^{r-1} \rightarrow r_{n+1}^r - r_n^r - 1 > 0 \quad r = \frac{r \pm 1}{4} \rightarrow -\frac{r}{4}$$

$$\Delta = f_r'(r)(+1) = 1$$

$$D_f =]R - \{r, -\frac{r}{4}\}$$

$$|r_{n+1}| - |r_n| > 0 \rightarrow (r_{n+1})^r > (r_n)^r \rightarrow r_{n+1}^r > r_n^r + r_n^{r-1} \rightarrow r_{n+1}^r - r_n^r - 1 > 0 \quad r = \frac{r \pm 1}{4} \rightarrow -\frac{r}{4}$$

$$\Delta = f_r'(r)(+1) = 1$$

$$D_f =]-\infty, -\frac{r}{4}] \cup [r, +\infty)$$

$\left\{ \begin{array}{l} \log_{f,0} \log_{f,0}^{(r_{n-1})} \geq 0 \xrightarrow{-\leq b < 1} \log_{f,0}^{r_{n-1}} \leq 1 \rightarrow r_{n-1} \leq \delta \rightarrow \textcircled{\text{III}} \\ \log_{f,0}^{r_{n-1}} > 0 \rightarrow r_{n-1} > 1 \rightarrow \textcircled{\text{II}} \\ r_{n-1} > 0 \rightarrow \textcircled{\text{I}} \end{array} \right.$

$$\left\{ \begin{array}{l} \log_{\frac{x-1}{x+1}} \geq 0 \rightarrow \frac{x-1}{x+1} \geq 1 \rightarrow \frac{x-1}{x+1} - 1 \geq 0 \rightarrow \frac{x-1-x-1}{x+1} \geq 0 \rightarrow \frac{-2}{x+1} \geq 0 \rightarrow \frac{-1}{\frac{x+1}{2}} \quad (-\infty, -1) \text{ (I)} \\ \frac{x-1}{x+1} > 0 \rightarrow \frac{-1}{\frac{x+1}{2}} \quad (-\infty, -1) \cup (1, +\infty) \text{ (II)} \end{array} \right. \quad \text{I} \cap \text{II} \Rightarrow Df = (-\infty, -1)$$

وَسَمِيتُ الْفَرْ؟



ج- ٤) $\frac{(n^2-1)(n^3-n^2)}{(n^2-1)} \geq 0 \rightarrow \frac{(n-1)(n+1)(n^2)(n-1)}{(n-1)(n^2+n+1)} \geq 0$

$D_f = (-\infty, -1] \cup \{0\} \cup [3, +\infty)$

دعوت به نظر: $\Delta < 0$

Sign chart: $\begin{array}{ccccccc} & -1 & 0 & 1 & 3 & & \\ + & | & - & | & - & | & + \end{array}$

الف - ٥) $2C \sin u + 1 > 0 \rightarrow C \sin u > -\frac{1}{2} \rightarrow D_f = (2k\pi - \frac{\pi}{6}, 2k\pi + \frac{\pi}{6})$

