

الف)  $\frac{x+3}{2x^2+3x-1} \rightarrow x = -3$   
 $2x^2+3x-1 \div x+3 \rightarrow 2x^2-3x+1 = 0 \xrightarrow{\Delta} (-3)^2 - 4(2)(1) = 9-8=1 \rightarrow \frac{3 \pm \sqrt{1}}{4} = \frac{3 \pm 1}{4} \rightarrow x = 1, -\frac{1}{2}$   
 دایره  $R = \{-3, 1, -\frac{1}{2}\}$

ب)  $\frac{x+3}{2x^2+9x^2+10x+3} \rightarrow x = -3$   
 $11x^2+10x+3 \div x+3 \rightarrow (x+3)(2x^2+3x+1) \rightarrow (x+3)(2x+1)(x+1) \rightarrow x = -3, -1, -\frac{1}{2}$   
 دایره  $R = \{-3, -1, -\frac{1}{2}\}$

الف)  $\frac{x+3}{x^2-2x^2+2x-1} \xrightarrow{\Delta} (-\infty, 1) \cup (1, +\infty)$   
 $x^2-2x^2+2x-1 \div (x-1) \rightarrow (x-1)(x^2-x+1) \rightarrow x=1$   
 دایره  $R = \{1\}$

ب)  $\sqrt{\frac{x+3}{x^2-2x^2+2x-1}} \rightarrow x = -3$   
 $\frac{x+3}{x^2-2x^2+2x-1} \geq 0 \rightarrow \frac{x+3}{(x-1)(x^2-x+1)} \geq 0$   
 دایره  $R = \{-3, 1\}$

الف)  $\frac{2}{x^2-\Delta|x-1|-2x+\Delta} \neq 0$   
 $x \geq 1 \rightarrow |x-1| = x-1 \rightarrow x^2-\Delta(x-1)-2x+\Delta = x^2-\Delta x+\Delta-2x+\Delta = x^2-(\Delta+2)x+2\Delta \neq 0$   
 $\Delta \rightarrow \frac{(\Delta+2)^2-4(2\Delta)}{4} = \frac{\Delta^2+4\Delta+4-8\Delta}{4} = \frac{\Delta^2-4\Delta+4}{4} = \frac{(\Delta-2)^2}{4} \geq 0$   
 $x < 1 \rightarrow |x-1| = -(x-1) = -x+1 \rightarrow x^2-\Delta(-x+1)-2x+\Delta = x^2+\Delta x-\Delta-2x+\Delta = x^2+(\Delta-2)x \neq 0$   
 $\Delta \rightarrow x(x+\Delta-2) \neq 0 \rightarrow x \neq 0, x \neq 2-\Delta$   
 دایره  $R = \{0, 2-\Delta\}$

الف)  $\frac{x+3}{|2x+1|-|x+3|} \neq 0 \rightarrow |2x+1| \neq |x+3| \rightarrow 2x+1 \neq x+3 \rightarrow x \neq 2$   
 $2x+1 \neq -(x+3) \rightarrow x \neq -\frac{4}{3}$   
 دایره  $R = \{2, -\frac{4}{3}\}$

ب)  $\sqrt{|2x+1|-|x+3|} \geq 0 \rightarrow |2x+1| \geq |x+3| \rightarrow 2x+1 \geq x+3 \rightarrow x \geq 2$   
 $2x+1 \geq -(x+3) \rightarrow 3x \geq -4 \rightarrow x \geq -\frac{4}{3}$   
 دایره  $R = [2, +\infty) \cup [-\frac{4}{3}, +\infty)$

الف)  $\log_r(1-\log_r x) \rightarrow 1-\log_r x > 0 \rightarrow \log_r x < 1 \rightarrow x < r$   
 $\log_r(1-\log_r x) > 0 \rightarrow 1-\log_r x > 1 \rightarrow -\log_r x > 0 \rightarrow \log_r x < 0 \rightarrow x < 1$   
 دایره  $R = \{x < 1\}$

ب)  $\log_{\frac{1}{r}}(1-\log_{\frac{1}{r}} x) \rightarrow 1-\log_{\frac{1}{r}} x > 0 \rightarrow -\log_{\frac{1}{r}} x < -1 \rightarrow \log_{\frac{1}{r}} x < 1 \rightarrow x < \frac{1}{r}$   
 $\log_{\frac{1}{r}}(1-\log_{\frac{1}{r}} x) > 0 \rightarrow 1-\log_{\frac{1}{r}} x > 1 \rightarrow \log_{\frac{1}{r}} x < 0 \rightarrow x < 1$   
 دایره  $R = \{x < 1\}$

$$f(x) = \sqrt{\log_{\omega/d} \log_{\omega/d} (rx-1)} \rightarrow \log_{\omega/d} \log_{\omega/d} (rx-1) \geq 0 \rightarrow \log_{\omega/d} (rx-1) \geq 1 \rightarrow rx-1 \geq \omega \rightarrow x \geq r$$

$$x-1 > 0 \rightarrow x > 1 \rightarrow x > \frac{1}{5}$$

$$\log_{\omega} 2x-1 > 0 \rightarrow 2x-1 > 1 \rightarrow x > 1 \quad \xrightarrow{\text{فاصله}} [2, +\infty)$$

$$\log_{\frac{1}{2}} \log_{\frac{1}{2}} (2x-1) > 0 \rightarrow \log_{\frac{1}{2}} 2x-1 > 1 \rightarrow 2x-1 > \frac{1}{2} \rightarrow 2x > \frac{3}{2} \rightarrow x > \frac{3}{4}$$

$$\text{الف) } \log(2\cos x + 1) \rightarrow 2\cos x + 1 > 0 \rightarrow \cos x > -\frac{1}{2}$$

$$\xrightarrow{\text{is}} \mathbb{R} - \left\{ r_k \pi \pm \frac{r_\pi}{r} \right\}$$

$$\text{ب.) } \sqrt{\log \frac{x-1}{x+1}} \rightarrow \frac{x-1}{x+1} > 0 \rightarrow \begin{array}{l} x-1 > 0 \rightarrow x > 1 \\ x+1 > 0 \rightarrow x > -1 \\ \hline x-1 < 0 \rightarrow x < 1 \\ x+1 < 0 \rightarrow x < -1 \end{array} \xrightarrow{\text{ناتمام}} (-\infty, -1) \cup (1, +\infty)$$

$$F(x) = \sqrt{(a+r)x^r + ax + b} \rightarrow (a+r)x^r + ax + b \geq 0$$

$$\hookrightarrow a+r=0 \rightarrow a=-r \rightarrow (-r+r)x^2 + (-r)x + b \rightarrow -rx + b$$

$$\rightarrow -rx + b \geq 0 \rightarrow b \geq rx \rightarrow b \geq r(r) \rightarrow b \geq 4 \rightarrow -r(r) + b = 0$$

$$\rightarrow -9 + b = 0 \rightarrow \underline{b = 9} \quad | R$$

$$f(x) = \sqrt{x^2 + 2x + 1 - m^2} \rightarrow x^2 + 2x + 1 - m^2 \geq 0 \rightarrow x^2 + 2x + (1 - m^2) \xrightarrow{\text{مربعاً حتماً!}}$$

$$\rightarrow x^2 + 2x + (2 - m^2) \rightarrow x = -\frac{b}{2a} = -\frac{2}{2} = -1 \rightarrow (-1)^2 + 2(-1) + (2 - m^2) = 1 - 2 + 2 - m^2 = 1 - m^2$$

$$1 - m^2 \geq 0 \rightarrow m^2 \leq 1 \rightarrow -1 \leq m \leq 1$$

اختلاف  $\rightarrow 1 - (-1) = 2$

$$f(x) = \sqrt{r - x^2} \rightarrow r - x^2 \geq 0 \rightarrow -r \leq x \leq r$$

$$[x] + [-x] + 1 \rightarrow [x] + [-x] + 1 \neq 0 \rightarrow [-2] + [+2] + 1 = 1 \neq 0$$

۲۱۵۰۱۰۳-۶  
 به تمام ابعاد بازه  
 ۲۵۲-۳۵۲  
 مساحت می شود