

مشتق

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$$f(x) = \sqrt{(a-x)x^2 + b}$$

$$[3, +\infty) \rightarrow \text{مشتق}$$

$$\frac{f'(x)}{f(x)} \rightarrow (a-x) = 0 \rightarrow a-x \rightarrow x^2 + b \rightarrow \frac{3, +\infty}{b = -4}$$

$$f < f(1-m^2)$$

$$m^2 < 2$$

$$-\sqrt{2} < m < \sqrt{2} \rightarrow \sqrt{2} - (-\sqrt{2}) = \boxed{2\sqrt{2}}$$

$$\langle a \rangle = 0, \Delta < 0$$

← دامنه مقبوع

$$\frac{\sqrt{4-x^2}}{[x]+[-x]+1} \Rightarrow 4-x^2 > 0 \rightarrow 2 > x^2 \rightarrow -2 < x < 2$$

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

$$[x]+[-x] = -1 \rightarrow \text{مشتق}$$

$$\left\{ \begin{array}{l} \text{اگر } x \text{ و } -x \text{ و } 1 \text{ را در نظر بگیریم} \\ D_f = [-2, 2] \end{array} \right\}$$

$$\text{الف) } y = \sqrt{x^3 + 3x^2} = \sqrt{x^2(x+3)} \rightarrow x^2(x+3) > 0$$

$$D_f = [-3, +\infty)$$

$$\text{ب) } y = \sqrt{\frac{(x^2-1)(x^2-3x^2)}{(x^2-1)}} = \sqrt{\frac{(x+1)(x-1)(x^2)(x-3)}{(x-1)(x^2+1)}}$$

$$\Rightarrow \begin{array}{c} -1 \quad 0 \quad 1 \quad 3 \\ + \quad - \quad - \quad + \end{array}$$

$$D_f: (-\infty, -1] \cup [0, 1] \cup [3, +\infty)$$

$$\text{الف) } y = \sqrt{|x-1|-3} \Rightarrow |x-1|-3 > 0 \rightarrow |x-1| > 3 \rightarrow x-1 > 3 \rightarrow x > 4 \text{ or } x-1 < -3 \rightarrow x < -2$$

$$\text{ب) } y = \sqrt{4-|x-2|} \Rightarrow 4-|x-2| > 0 \rightarrow |x-2| < 4 \rightarrow -2 < x < 6$$

$$\text{الف) } y = \sqrt{1-x|x|} \Rightarrow 1-x|x| > 0 \rightarrow 1-x^2 > 0 \rightarrow (1+x)(1-x) > 0 \Rightarrow \frac{-1}{-1} + \frac{1}{1} = 1 \Rightarrow x < 1$$

$$\text{ب) } y = \frac{1}{\sqrt{3-|x-1|}} \Rightarrow 3-|x-1| > 0 \rightarrow |x-1| < 3 \rightarrow -2 < x < 4$$

$$\text{الف) } D_f = [2, 4] \cup [6, 8]$$

$$\text{الف) } y = \frac{\sin^2 x - 1}{\cos x} \Rightarrow \cos x \neq 0 \rightarrow \bigoplus \mathbb{R} - \left\{ k\pi + \frac{\pi}{2} \mid k \in \mathbb{Z} \right\}$$

$$\text{ب) } y = \frac{\cos x}{x \cos x - 1} \Rightarrow x \cos x - 1 \neq 0 \rightarrow \cos x \neq \frac{1}{x} \rightarrow \bigoplus \mathbb{R} - \left\{ k\pi \pm \frac{\pi}{x} \right\}$$

$$\begin{aligned}
 \text{الف) } y &= \frac{x+r}{|2x+1|-|x+r|} \Rightarrow |2x+1|-|x+r|=0 & \text{for } x+1 > x+r & \Rightarrow r < 0 \\
 & \quad |2x+1| = |x+r| & \text{for } x+1 < x+r & \Rightarrow r > 0 \\
 & \quad |R - (-\frac{r}{r}, r)| & & \\
 & \quad r^2x^2 + rx - x^2 - 9 - rx = 0 & \text{for } x+1 > x+r & \Rightarrow r < 0 \\
 & \quad r^2x^2 - rx - 1 = 0 & \text{for } x+1 < x+r & \Rightarrow r > 0 \\
 & \quad x = \frac{r}{r^2} = r & & \\
 & \quad x = -\frac{r}{r} & & \\
 & \quad (x-y)(x+r) = 0 & & \\
 & \quad x = \frac{y}{r} = r & & \\
 & \quad x = -\frac{r}{r} & &
 \end{aligned}$$

$$\text{ب) } y = \sqrt{|2x+1|-|x+r|} \Rightarrow |2x+1|-|x+r| \geq 0$$

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

$$\text{or } R = (-\frac{r}{r}, r)$$

$$|2x+1| \geq |x+r|$$

$$\begin{aligned}
 r^2x^2 + rx - x^2 - 9 - rx &\geq 0 \\
 r^2x^2 - rx - 1 &\geq 0 \\
 x = \frac{r}{r^2} = r \\
 x = -\frac{r}{r}
 \end{aligned}$$

$$f(x) = \sqrt{\log_{\frac{1}{2}} \log_{\frac{1}{2}} (rx-1)}$$

$$\text{① } rx-1 > 0 \rightarrow x > \frac{1}{r}$$

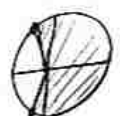
$$\text{② } \log_{\frac{1}{2}} (rx-1) > 0 \rightarrow rx-1 > 1 \rightarrow x > 1$$

$$\text{③ } \log_{\frac{1}{2}} \log_{\frac{1}{2}} (rx-1) > 0 \rightarrow \log_{\frac{1}{2}} (rx-1) < 1 \rightarrow rx-1 < \frac{1}{2} \rightarrow x < \frac{3}{2r}$$

$$\begin{aligned}
 \text{①} \cap \text{②} \cap \text{③} &= \\
 D_f &= (1, \frac{3}{2r})
 \end{aligned}$$

$$\text{الف) } y = \log(r \cos x + 1) \rightarrow r \cos x + 1 > 0$$

$$\cos x > -\frac{1}{r}$$



$$\begin{aligned}
 D_f &= [rk\pi + \frac{r\pi}{r}, rk\pi + \frac{r\pi}{r}] \\
 \text{or } [rk\pi - \frac{\pi}{r} - \frac{\pi}{r}, rk\pi + \frac{\pi}{r} + \frac{\pi}{r}]
 \end{aligned}$$

$$\text{ب) } y = \sqrt{\log \frac{x-1}{x+1}} \Rightarrow \text{① } \frac{x-1}{x+1} > 0 \Rightarrow \frac{-1}{+} - \frac{1}{-} +$$

$$\text{② } \log \frac{x-1}{x+1} > 0 \rightarrow \frac{x-1}{x+1} > 1 \rightarrow \frac{x-1}{x+1} > 1$$

$$D_f = \text{①} \cap \text{②} \rightarrow (-\infty, -1)$$

$$\frac{-r}{x+1} > 0 \Rightarrow \frac{-1}{+} -$$

خسته باشم