

$$y = x^2 \quad x = \sqrt{x^2 - 1} \quad \Delta$$

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

① چون برای برداردی آخری تابع نیست

$$f(x) = -6, 4, 2$$

$$(-6, -2] \cup (0, 4) \cup [4, +\infty)$$

$f(x)$	-	+	+	+	+	+
$f'(x)$	+	+	+	+	+	+
$f''(x)$	+	+	+	+	+	+

$$f(x) = R - \{0, 2\}$$

$$x = \sqrt{x^2 - 1} \quad x(x^2 - 1) = 0$$

$$0 \neq x$$

$$x^2 - 1 = 0 \quad x = \pm 1 \quad \Delta < 0$$

$$-1 \quad 0 \quad 1$$

$$P_f = (-2, 0) \cup (2, +\infty)$$

$$(الف) \sqrt{\frac{x-2}{x^2-4x-8}} \Rightarrow P_f = (-\infty, -2) \cup (2, +\infty) + \frac{-2}{1-1+}$$

$$x > 0 \quad x^2 - 4x - 8 = 0 \quad x = \frac{4 \pm \sqrt{16+32}}{2} = \frac{4 \pm \sqrt{48}}{2} = \frac{4 \pm 4\sqrt{3}}{2} = 2 \pm 2\sqrt{3}$$

$$(ب) \frac{x^2+1}{x^2-2x-7} \quad x = [-2, 2] \quad x = [-2, 2] \quad x < -2 \quad x > 2$$

$$P_f = R - (-2, 2)$$

$$(الف) \sqrt{x(x^2-1)} \rightarrow \frac{-1 \quad 0 \quad 1}{-1 \quad +1 \quad -1 \quad +} \rightarrow P_f = [1, +\infty) \cup \{-1\}$$

$$\sqrt{1+x+m} \rightarrow R \setminus \{-1\}$$

بابت

Subject:

Date:

$$y = \log_{x+1} \log_x \frac{1}{x}$$

$$x > 0, x \neq 1$$

$$\frac{Dy}{Dx} (0, +\infty)$$

$$x+1 > 0$$

$$x-1 \neq 0$$

$$\begin{cases} x > -1 \\ x \neq 0 \end{cases}$$

(4)

$$0 < x^2 - 1 \leq x$$

$$-\frac{1}{x} < x^2 \leq \frac{1}{x}$$

$$-\frac{1}{\sqrt{x}} < x \leq \frac{1}{\sqrt{x}}$$

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$$f(x) = \sqrt{|x-1|-x^2} \quad |x-1| \geq x^2 \quad \begin{cases} x^2 - x + 1 \leq 0 \\ x^2 + x - 1 \leq 0 \end{cases} \quad \begin{matrix} \Delta < 0 \\ \Delta > 0 \end{matrix}$$

$$D_f = [-1, 5] \cup [-1, 1]$$

$$f(x) = \sqrt{(x-1)(x-5)} \quad x-1 \geq 0 \quad x-5 \geq 0 \quad \begin{matrix} x \geq 1 \\ x \geq 5 \end{matrix} \quad \begin{matrix} x \geq 5 \\ x \geq 1 \end{matrix}$$

$$f(x) = \sqrt{|x-1|} \quad |x-1| \geq 0 \quad \begin{matrix} x \geq 1 \\ x \leq 1 \end{matrix} \quad \begin{matrix} x \geq 1 \\ x \leq 1 \end{matrix}$$

$$||x-1|-1| - k = 0 \quad ||x-1|-1| = k$$

$$|x-1|-1 = \pm k \quad \rightarrow |x-1| = k+1 \quad x-1 = \pm(k+1)$$

$$\begin{aligned} \textcircled{1} 1-k > 0 \quad 1 < k &\rightarrow \text{no solution} \\ \textcircled{2} 1-k = 0 &\rightarrow x = 1 \\ \textcircled{3} 1-k < 0 &\rightarrow \text{no solution} \end{aligned}$$

$$x^2 + 4x + 9 \neq 0 \quad -1, -2$$

$$x+1 \neq 0 \quad x \neq -1$$

$$x-1 \neq 0 \quad x \neq 1$$

$$x^2 - 4x + 9 = 0 \quad (x-2)^2 \rightarrow$$