

Subject:

Year. Mont. Date. ()

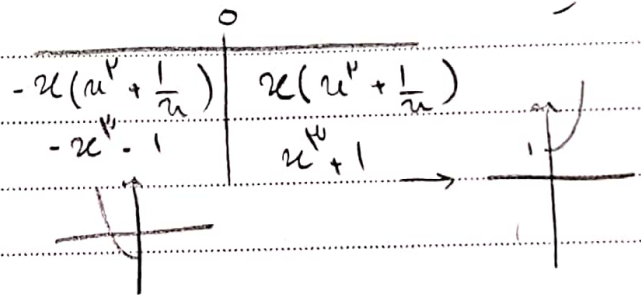
۱) $f(x) - f(x+1) > 0$
 $f(x) > f(x+1)$ $f \rightarrow$ نزولی

$x > x+1 \Rightarrow 1 > 1x \Rightarrow x < 1$

۲) $f(f(x)) < f(x^p)$ $f(x) \rightarrow \infty$ (۲)

$f(x) < x^p$
 $(x^p + x)^p < x^p \Rightarrow x^p + x < x$
 $x^p < 0 \Rightarrow (-\infty, 0)$

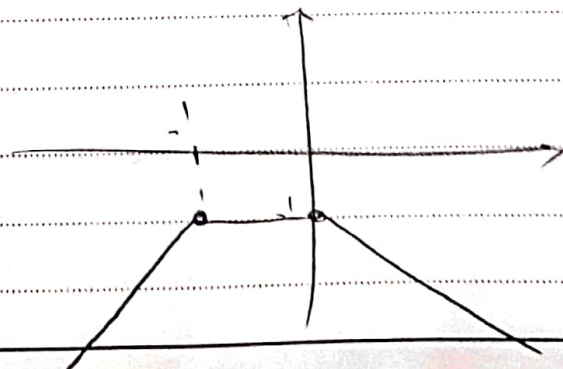
۳) $y = |x|(x^p + \frac{1}{x}) \Rightarrow$ (۳)



۴) $f(x) = \frac{x^p + 1}{|x| - |x+1|}$ (۴)

$|x| - |x+1| = -1$ $(-\infty, 0]$ $\Rightarrow a = 0$

$\frac{x^p + 1}{-x - x+1} = \frac{x^p + 1}{-2x - 1}$
 $\frac{x^p + 1}{-2x - 1} = -1$
 $x^p + 1 = 2x + 1$
 $x^p = 2x$
 $x^{p-1} = 2$
 $x = 2^{\frac{1}{p-1}}$



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$$\log_{\frac{1}{r}} a \rightarrow$$

$$y = \log_{\frac{1}{r}} (a^r - r x - 1)$$

$$a^r - r x - 1$$

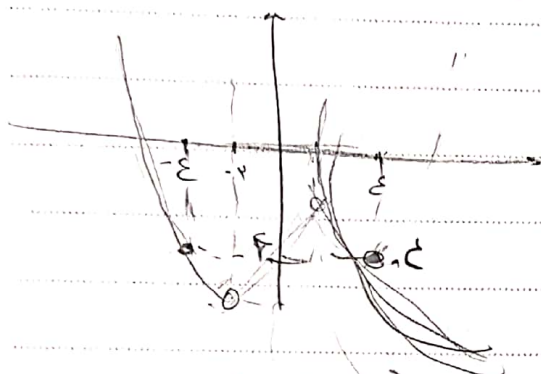
(6)

$$a^r - r x - 1 > 0$$

$$r + r x = r y \Rightarrow \frac{r + r y}{r}$$

$$\begin{array}{c} r \\ \hline r - r \\ -r \quad \varepsilon \\ + \quad - \quad + \end{array}$$

$$\Rightarrow x \in (-\infty, -r) \cup (\varepsilon, +\infty)$$



$$\log_{\frac{1}{r}} \Rightarrow (-r, \varepsilon)$$

$$a^r - \varepsilon \Rightarrow 19 + 1 - 1 = 19$$

$$\Rightarrow \log_{\frac{1}{r}} = -\varepsilon$$

$$x = 9 \Rightarrow 19 - 19 - 1 = 19$$

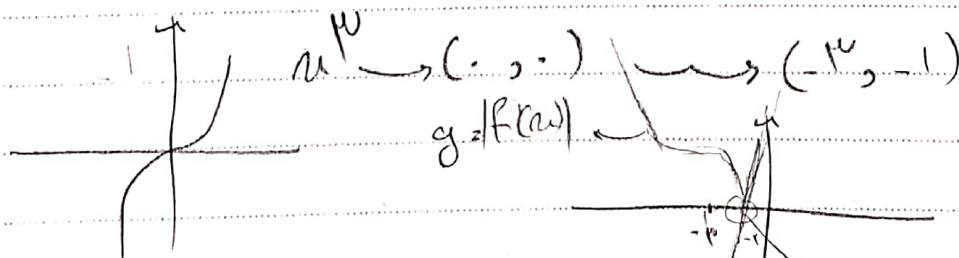
$$\Rightarrow \log_{\frac{1}{r}} = -\varepsilon$$

$$f(x) = (a^r - r)^x$$

(4)

$$a^r - r > 1 \Rightarrow a^r > r \Rightarrow a > r \cup a < -r$$

$$a^r - r > 1 \Rightarrow a^r > \varepsilon \Rightarrow a > r \cup a < -r$$



$$\Rightarrow (-r, +\infty)$$

$$\Rightarrow K, r$$

$$(x + r)^r - 1 \Rightarrow$$

$$(x + r)^r \geq 1 \Rightarrow x + r \geq 1 \Rightarrow x \geq -r$$

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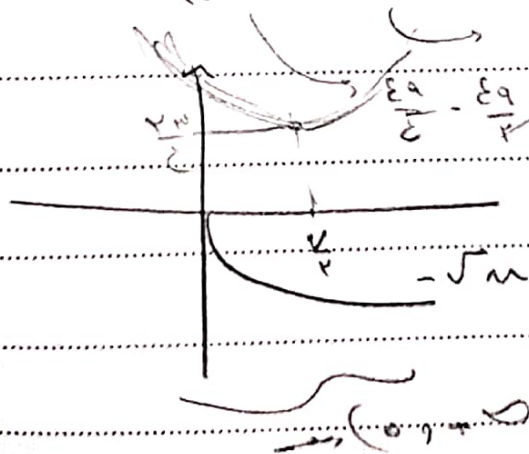
$$f(u) \rightarrow \text{case} \Rightarrow f(u + \sqrt{u} - \epsilon) \leq \sqrt{u}$$

$$u + \sqrt{u} - \epsilon + \sqrt{u + \sqrt{u} - \epsilon} - \epsilon \leq \sqrt{u}$$

$$u - \epsilon + \sqrt{u + \sqrt{u} - \epsilon} \leq \sqrt{u}$$

$$0 \leq u^p - 14u + 14 + u + \sqrt{u}$$

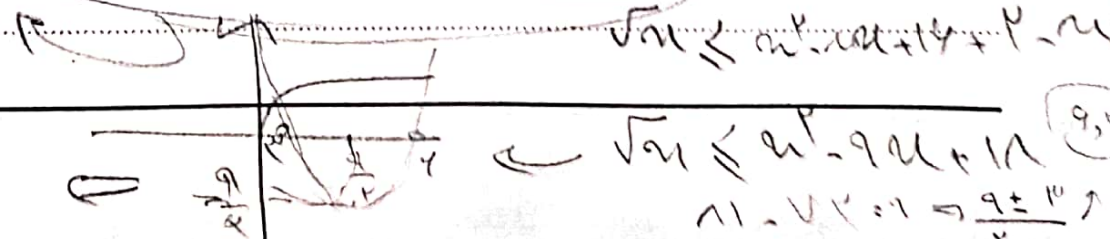
$$-\sqrt{u} \leq u^p - 14u + 14$$



$$\sqrt{u + \sqrt{u} - \epsilon} \leq \epsilon - u$$

$$|u + \sqrt{u} - \epsilon| \leq 14 + u^p - 14u$$

$$-u^p + 14u - 14 \leq u + \sqrt{u} - \epsilon \leq u^p - 14u + 14$$



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$$C \epsilon = 149 \epsilon, 0, 4$$

1. 3

$$g \circ f(u) = g(f(u))$$

(to

$$\Rightarrow g(u - [u+r])$$

$$\Rightarrow \frac{u - [u+r] - u + [u+r]}{p} = \frac{u - [u+r] - 1 - u + [u+r] - 1}{p}$$

$$\Rightarrow \frac{u - [u+r] - 1 - u + [u+r] - 1}{p} = \frac{-2}{p}$$

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