

Subject:
Date:

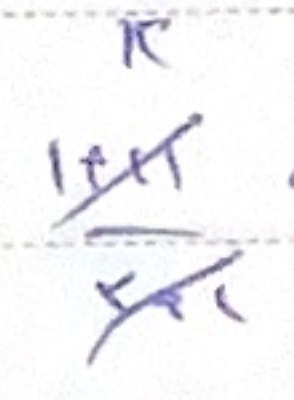
$$x = a \Rightarrow a^x + x a = a^x - \epsilon \Rightarrow a < -x$$



(۲)

$$g(x) = f(x) = x \Rightarrow \epsilon + b = x \Rightarrow b = -1$$

$$\frac{\epsilon + a}{x - b} = \frac{\epsilon + a}{x} \Rightarrow a = 1 \Rightarrow f(x) = \frac{x^2 + 1}{x + 1}, f(1) = \frac{1^2 + 1}{1 + 1} = 1$$



(۲)

$$x = (-1), \epsilon \begin{cases} x = (-1) \rightarrow x - a + b = 0 \Rightarrow a = -9 \\ x = \epsilon \rightarrow x + \epsilon a + b = 0 \Rightarrow b = -1 \end{cases}$$

(۲)

$$\Rightarrow f(x) = \frac{\epsilon x + 1}{x^2 - 9x - 1}$$

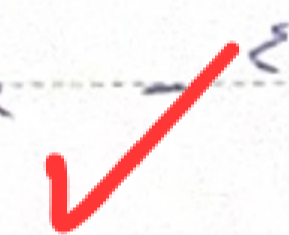
$$f(x) = \frac{a - \delta}{x}$$



$$-1 \rightarrow \text{مستحق} \Rightarrow -\epsilon x^2 + \epsilon a x + b = |x(x+1)| \Rightarrow |x| > -\epsilon$$

(۲)

$$\Rightarrow -\epsilon x^2 + \epsilon a x + b = -\epsilon(x+1)^2 = -\epsilon x^2 - 2\epsilon x - \epsilon \Rightarrow \begin{cases} a = -1 \\ b = -1 \end{cases} \Rightarrow a + b = -2$$



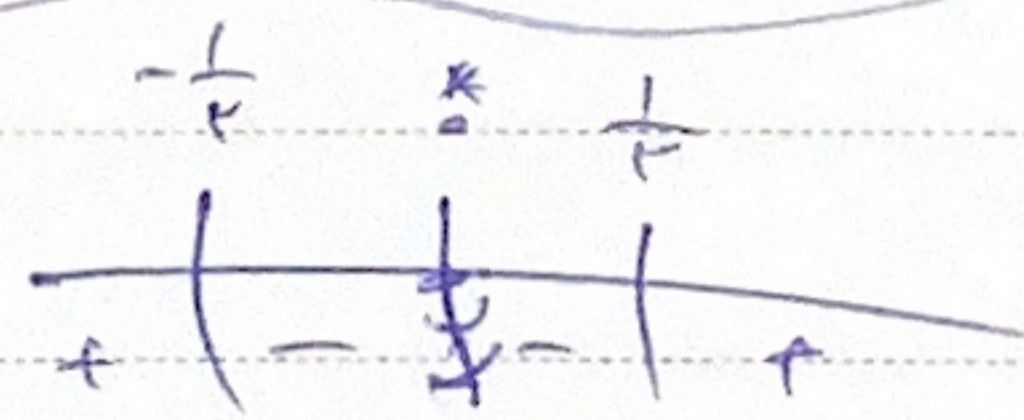
$$1 \rightarrow \text{مستحق} \begin{cases} 1 \rightarrow \text{مستحق} \Rightarrow (m+1) > 0 \Rightarrow m > -1 \\ \Delta < 0 \Rightarrow m^2 - \epsilon < 0 \Rightarrow -\sqrt{\epsilon} < m < \sqrt{\epsilon} \end{cases}$$

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$$-\sqrt{\epsilon} < m < \sqrt{\epsilon} \cup m > -1 \Rightarrow m \in [-\sqrt{\epsilon}, \sqrt{\epsilon})$$



$$x \neq 0 \quad \epsilon - \frac{1}{x^2} > 0 \Rightarrow \frac{\epsilon x^2 - 1}{x^2} > 0$$



$$\Rightarrow D_f = (-\infty, -\frac{1}{\epsilon}] \cup [\frac{1}{\epsilon}, \infty)$$



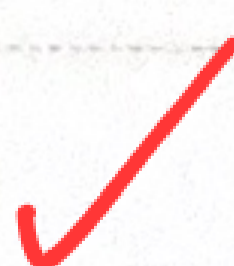
(۲)

$$m = 0 \rightarrow f(m) = 1$$

$$m > 0 \Rightarrow \Delta < 0 \Rightarrow \epsilon m^2 - \epsilon m < 0 \Rightarrow m \in (0, 1]$$

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$$D_f = \{0\} \cup (0, 1] = [0, 1]$$



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$$r(x-1) = a \quad r(x-1) = 0 \Rightarrow x = a = \frac{1}{r}$$

$$r(x+1) = \frac{1}{r} \Rightarrow r = r + \frac{1}{r} \Rightarrow \underline{r = 0}$$

$$r + a = 0 + \frac{1}{r} \Rightarrow \frac{1}{r} \quad \text{①}$$

$$f(x) = g(x) \quad x = \frac{r}{r} \Rightarrow r(x+b) = \frac{9x^2 - 5}{cx+r} = \frac{(rx-r)(r(x+r))}{cx+r}$$

$$x = \frac{r}{r} \Rightarrow r(x+b) = r(x-r) \Rightarrow \text{① } b = -r$$

$$x = \frac{r}{r} \Rightarrow r(x-r) = r(ax+r) \Rightarrow \frac{1}{r} = r(a+r) \Rightarrow \frac{1}{r} = ra + r \Rightarrow \text{① } a = \frac{1}{r} - r$$

$$a - b = \frac{1}{r} - (-r) = \frac{1}{r} + r$$

$$f(x) = g(x), \quad a = r \Rightarrow \frac{1}{r} = ra + r \Rightarrow ra + r = \frac{1}{r}$$

$$\Rightarrow a^2 + a - r = 0 \quad (a-1)(a+r) = 0 \Rightarrow \text{① } a = 1 - r$$