

نام و نام خانوادگی محمد مهدی داری پاسخنامه تشریحی تکلیف شماره ۱۱۱... کلاس ... دبیر ...

الف) $\frac{x-1}{x} - \frac{x}{x-1} \geq 0 \Rightarrow \frac{(x-1)^2 - x^2}{x(x-1)} \geq 0 \Rightarrow \frac{(x^2-2x+1) - x^2}{x(x-1)} \geq 0 \Rightarrow \frac{-2x+1}{x(x-1)} \geq 0$

ب) $\mathbb{R} - \left\{ -\frac{1}{2}, -1, -\frac{1}{x}, 0 \right\}$

$(-\infty, 0) \cup \left[\frac{1}{2}, 1\right)$

$\frac{1}{x+1} - \frac{1}{x-1} \geq 0 \Rightarrow \frac{x-1}{(x+1)(x-1)} - \frac{x+1}{(x+1)(x-1)} \geq 0 \Rightarrow \frac{x-1-x-1}{(x+1)(x-1)} \geq 0 \Rightarrow \frac{-2}{(x+1)(x-1)} \geq 0$

الف) $\left(\frac{1}{x}\right)^2 - 9 \leq 0 \Rightarrow \frac{1}{x^2} - 9 \leq 0 \Rightarrow \frac{1 - 9x^2}{x^2} \leq 0 \Rightarrow \frac{(1-3x)(1+3x)}{x^2} \leq 0$

$x = -\frac{1}{3}, x = \frac{1}{3}, x = 0$

$[-\frac{1}{3}, \frac{1}{3}]$

ب) $x-1 \geq 0 \Rightarrow x \geq 1$
 $y+1 \geq 0 \Rightarrow y \geq -1$

$x^2 - x - 2 > 0 \Rightarrow (x+1)(x-2) > 0$

$x^2 - 1 \geq 0 \Rightarrow (x+1)(x-1) \geq 0$

$\sqrt{x^2-1} + 1 \neq 0$
 $\sqrt{x^2-1} - 1$

$(-\infty, -1) \cup (2, +\infty)$

$(-\infty, -1] \cup [1, +\infty)$

$(-\infty, -1) \cup (2, +\infty)$

$x^2 + 12 > 0$

$\frac{-a - \sqrt{a^2 + 12}}{-2} = -2 \Rightarrow a = -2 - \sqrt{a^2 + 12}$

$f(x) - x \geq 0 \Rightarrow f(x) \geq x \Rightarrow x \geq -2$

$$\sin \frac{\pi}{2} + \cos^2 \pi \rightarrow \frac{\sqrt{v}}{v} + 1$$

$$r \left(\frac{\sqrt{v}}{v} + 1 \right)^r - r \left(\frac{\sqrt{v}}{v} + 1 \right) = \frac{v}{v} - r = -\frac{1}{r}$$

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$$f(a) = \frac{a+1}{a-1} \quad f\left(\frac{a+1}{a-1}\right) = a \rightarrow \frac{a+r}{a-r} = a \rightarrow a^r = r a = a+r$$

$$a^r - r a - r = 0$$

$$a = \frac{1 \pm \sqrt{1+r}}{r}$$

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$$x^r - r x = -r \rightarrow (x-r)^r = 0 \rightarrow x = r$$

$$g(a) = r \rightarrow \sqrt{a^r - 1} = r$$

$$a^r - 1 = r$$

$$a = \sqrt[r]{r+1}$$

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$$f(r) = 1 - \Delta + 4 = r \rightarrow r \times \sqrt{r} = |r|$$

$$f(-r) = r + r_0 + 4 \leq \sqrt{r}$$

$$r + r_0 = r$$

$$r_0 = 0$$

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$$r \cos^2 x + \Delta \cos x = \frac{r}{\Delta} \rightarrow \cos x = \frac{r/\Delta}{r \cos^2 x + \Delta}$$

$$\frac{\sin^2 x}{\cos^2 x} \rightarrow 1 - \left(\frac{r/\Delta}{r \cos^2 x + \Delta} \right)^2$$

$$\frac{r/\Delta}{r \cos^2 x + \Delta} !$$

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