

نام و نام خانوادگی زیربسیار بسیار زیاده پاسخنامه تشریحی تکلیف شماره ... کلاس پایه دهم، هنر ...

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

ب) $D_f = (-\infty, 0) \cup (\frac{1}{2}, 1)$

ج) $x+1 \neq 0 \rightarrow x \neq -1$ $x \neq 0$
 $x-1 \neq 0 \rightarrow x \neq 1$ $x+2 \neq 0 \rightarrow x \neq -2$

$D_f = \mathbb{R} - \{-1, 0, 1, -2\}$

$\frac{x}{x-1} + \frac{1}{x+2} = \frac{x(x+2)+x-1}{(x-1)(x+2)} = \frac{x^2+3x-1}{x^2-2x}$

$\frac{x^2+3x-1}{x^2-2x} \leq 0 \rightarrow x^2+3x-1 \leq 0$ $x^2-2x \geq 0$

الف) $(\frac{1}{x})^x - 9 = 0 \rightarrow (\frac{1}{x})^x = 9 \rightarrow x = -2$

ب) $x^2 - 4 = 0 \rightarrow x^2 = 4 \rightarrow x = \pm 2$

ج) $\sqrt{x-1} + \sqrt{y+1} = 2 \rightarrow \sqrt{x-1} = 2 - \sqrt{y+1} \rightarrow \sqrt{x-1} \geq 0 \rightarrow 2 - \sqrt{y+1} \geq 0 \rightarrow \sqrt{y+1} \leq 2 \rightarrow y+1 \leq 4 \rightarrow y \leq 3$

$D_f = (-\infty, -2] \cup (\frac{1}{2}, +\infty)$

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

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

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

$x^2 + ax - 2 \geq 0 \rightarrow -x^2 + ax + 2 \geq 0$

$x = -2 \rightarrow -4 - 2a + 2 = 0 \rightarrow -2a = 2 \rightarrow a = -1$

$-2a - 1 = 0 \rightarrow -2a = 1 \rightarrow a = -\frac{1}{2}$

$x^2 - x - 14 = 0 \rightarrow (x-5)(x+3) = 0$

$x = 5$ $x = -3$

$D_f = (-\infty, -3) \cup (5, +\infty)$

$f(x) = x \geq 0 \rightarrow x \geq 1 \rightarrow x^2 - 1 - x \geq 0 \rightarrow x^2 - x - 1 \geq 0$

$f(x) = x \geq 0 \rightarrow x < 1 \rightarrow x^2 + 1 - x \geq 0 \rightarrow x^2 - x + 1 \geq 0$

$D_f = (-\infty, -1) \cup (1, +\infty)$

$$\sin \frac{\pi}{p} = \frac{\sqrt{p}}{p} \quad / \quad \cos p\pi = 1$$

$$F(\sin \frac{\pi}{p} + \cos p\pi) = \frac{\sqrt{p}}{p} + \frac{p}{p} = \frac{p + \sqrt{p}}{p}$$

$$p \times \frac{p + \sqrt{p}}{p} \times \frac{p + \sqrt{p}}{p} = F \times \frac{p + \sqrt{p}}{p}$$

$$\frac{p + p + F\sqrt{p}}{p} + \frac{-1 - F\sqrt{p}}{p} = \frac{-1}{p}$$



$$F(F(a)) = a$$

$$F(a) = \frac{a+1}{a-1} \Rightarrow F\left(\frac{a+1}{a-1}\right) = \frac{\frac{a+1}{a-1} + 1}{\frac{a+1}{a-1} - 1}$$

$$= \frac{a+1+a-1}{a-1}$$

$$a-1 \neq 0 \Rightarrow \sqrt{a+1}$$

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$$= \frac{a+1+a-1}{a-1}$$

$$= \frac{2a}{a-1}$$

$$= \frac{p a}{a-1} = \frac{p a}{p} = a$$



$$F(g(a)) = -F$$

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

$$F(\sqrt{a^p - 1}) = (\sqrt{a^p - 1})^p - F\sqrt{a^p - 1} = a^p - 1 - F\sqrt{a^p - 1} = -F$$

$$\sqrt{a^p - 1} = t \rightarrow t^p - Ft = -F \rightarrow t^p - Ft + F = 0 \Rightarrow (t - F)^p = 0 \rightarrow t = F$$

$$\sqrt{a^p - 1} = F \xrightarrow{p} a^p - 1 = F^p \rightarrow a^p = F^p + 1 \rightarrow a = \sqrt[p]{F^p + 1}$$



$$f(x+p) = x^p - 2x + 4$$

$$f(x) \times f(-p)$$

$$x+p = F \Rightarrow x = F-p \rightarrow f(F-p) = 1 - 2(F-p) + 4 = F$$

$$x+p = -p \Rightarrow x = -2p \rightarrow f(-2p) = (-2p)^p - 2(-2p) + 4 = F$$

$$f \rightarrow f(x) \times f(p) = \sqrt{1 \times F}$$



$$F \cos^p x + 2 \cos u = F/a \Rightarrow \cos u = t \Rightarrow F t^p + 2t - F/a = 0 \xrightarrow{p} 1 t^p + 1 t - 1 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-10 \pm \sqrt{100 + 4 \times 1 \times 1}}{2 \times 1} = \frac{-10 \pm 11}{2} = \frac{-10 + 11}{2} = \frac{1}{2} = \frac{p}{p} = t = \cos u$$

$$\frac{-10 + 11}{2} = \frac{1}{2} = \frac{1}{p} = t = \cos u$$

$$\left. \begin{matrix} -1 \leq \cos u \leq 1 \\ \cos u = \frac{1}{p} \end{matrix} \right\} \Rightarrow \cos u = \frac{1}{p}$$

$$\sqrt{p} \Rightarrow \tan u = \frac{\sqrt{p}}{1} \Rightarrow \tan^p u = p$$

