

پر بیان باقری / تالیف شماره ۵ / یازدهم دفتر A

۲. آزمون خوب نوشته شد

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الف) $\frac{x-1}{x} - \frac{x}{x-1} \geq 0$

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

0	1/2	1
+	-	+
0	0	0

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

ب) $\frac{1}{x+1} - \frac{2}{x} \rightarrow x \neq 0, -1$

$\frac{3}{x-1} + \frac{1}{x+2} \rightarrow x \neq 1, -2$

$3x+4+x-1 = 4x+3 \neq 0$

$D_f = \mathbb{R} - \left\{ -2, -\frac{5}{4}, 1, 0, 1 \right\}$ $x \neq -\frac{5}{4}$

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الف) $\left(\left(\frac{1}{3} \right)^x - 9 \right) (32 - 4^x) \geq 0$

$x = -2$

$x = \frac{5}{2}$

-2	5/2
+	-
+	+

$D_f = (-\infty, -2] \cup [\frac{5}{2}, +\infty)$

ب) $\sqrt[4]{x-1} + \sqrt{y+1} = 3$ $x \geq 1, y \geq -1$

$\sqrt[4]{x-1} \geq 0 \rightarrow x \leq 17$

$D_f = [1, 17]$

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

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$$x < -1, \quad x > 2 \quad I$$

$$x^2 - 1 > 0 \rightarrow x < -1, \quad x > 1 \quad II$$

$$\Rightarrow I \cap II : D_f = (-\infty, -1) \cup (1, +\infty)$$

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$$x = -2 \rightarrow 3 - 2a - 1 = 0 \rightarrow a = \frac{-1}{2}$$

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$$-x^2 - \frac{1}{2}x + 3 > 0$$

$$\frac{\frac{1}{2} \pm \sqrt{\frac{1}{4} - 12}}{-2}$$

$$= -2, \frac{3}{2} \rightarrow b = \frac{3}{2}$$

$$\Rightarrow a + b = 1$$

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$$3x - 1 > 2 \rightarrow x > 1 \quad \checkmark$$

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

$$f(x) = x > 0$$

$$D_f = [-\frac{1}{2}, +\infty)$$

$$\frac{-\frac{1}{2}}{-2} = \frac{1}{4}$$

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$$f\left(\sin \frac{\pi}{2} + \cos 2\pi\right) = f\left(1 + \frac{\sqrt{2}}{2}\right)$$

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$$2\left(1 + \frac{\sqrt{2}}{2}\right)^2 - 2 - 2\sqrt{2} = \frac{-1}{2}$$

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

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

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

$$a = 1R - \{1\}$$

$$\phi(\sqrt{a^2-1}) = -f$$

1

$$a^2-1 - f\sqrt{a^2-1} = -f$$

$$(\sqrt{a^2-1} - f)^2 = 0 \rightarrow a = \pm \sqrt{a^2-1}$$

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$$\phi_f = 1 - \Delta + \gamma = \gamma$$

$$\phi_{-f} = 1 - \Delta + \gamma = \gamma$$

$$\phi_f \times \phi_{-f} = \gamma \times \gamma = 1 \text{ if } \gamma = 1$$

$$f \cos^2 \alpha + \Delta \cos \alpha - \gamma \Delta = 0$$

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$$\Delta = 11 \rightarrow \cos \alpha = \frac{-\Delta \pm \gamma}{1} = \frac{1}{\gamma}, \left(\frac{-\gamma}{f}\right) \rightarrow \cos \alpha = \frac{1}{\gamma}$$

$$\cos \alpha = \frac{1}{\gamma} \rightarrow \tan^2 \alpha = \gamma^2 \Rightarrow \tan \alpha = \gamma$$