

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۵۰۰ کلاس ریاضیات دبیرستان A

۲. اولین معادله

الف) $x \neq 0$ و $x \neq 1$ $\frac{x-1}{x} - \frac{x}{x-1} \geq 0 \Rightarrow \frac{x^2 - 2x + 1 - x^2}{x^2 - x} \geq 0 \Rightarrow \frac{-2x + 1}{x(x-1)} \geq 0$
 $\frac{1}{x} - \frac{1}{x-1} \geq 0 \Rightarrow D_f = (-\infty, 0) \cup [\frac{1}{2}, 1)$

ب) $x \neq -1, 0, 1, 2$ و $\frac{x}{x-1} + \frac{1}{x+2} \neq 0 \Rightarrow \frac{3x^2 + 4x - 1}{(x-1)(x+2)} \neq 0 \Rightarrow x \neq \left\{ \frac{-2 \pm \sqrt{4+12}}{6} \right\}$
 $\Rightarrow D_f = \mathbb{R} - \left\{ -2, -\frac{1}{3}, 1, 2 \right\}$

الف) $\left(\left(\frac{1}{x} \right)^x - 9 \right) (32 - x^x) \geq 0$ $\frac{-2}{+1} - \frac{0}{+1} \Rightarrow D_f = \mathbb{R} - (-2, \frac{5}{2})$
 ریشه $x = -2$ و $x = \frac{5}{2}$

ب) $x - 1 \geq 0 \Rightarrow x \geq 1$ $\sqrt{4+1} = 3 - \sqrt{x-1} \Rightarrow 3 - \sqrt{x-1} \geq 0$
 $3 \geq \sqrt{x-1} \Rightarrow x-1 \leq 9 \Rightarrow x \leq 10$
 $D_f = [1, 10]$

$x^2 - x - 2 > 0$ $\frac{-1 \pm 2}{+1 - 1} \Rightarrow x \in \mathbb{R} - [-1, 2]$
 همواره $\oplus \rightarrow$ صخرج $\rightarrow D_f = \mathbb{R} - [-1, 2]$
 $x^2 - 1 \geq 0 \Rightarrow x \in \mathbb{R} - (-1, 1)$

۲) ریشه عبارت زیر را بیابال
 است $\Rightarrow 3 - 2a - 4 = 0 \Rightarrow a = -\frac{1}{2}$
 $-x^2 - \frac{x}{2} + 3 = 0 \Rightarrow x = \left\{ \frac{3}{2}, -2 \right\}$
 ریشه دیگر b است $a + b = -\frac{1}{2} + \frac{3}{2} = 1$ پاسخ

$f(x) - x \geq 0 \Rightarrow f(x) \geq x$ $\frac{x \geq 1}{x < 1} \Rightarrow 3x - 2 \geq x \Rightarrow x \geq 1 \checkmark A$
 $\Rightarrow 2x + 3 \geq x \Rightarrow x \geq -3 \cap x < 1$
 $-3 \leq x < 1 \checkmark B$
 $D_f = A \cup B = [-3, +\infty)$ پاسخ

$$x = \lim_{r \rightarrow \infty} \frac{\pi}{r} + \cos^2 \pi = \frac{\sqrt{r}}{r} + 1 = \frac{\sqrt{r+1}}{r}$$

$$f(x) = r(x-r) = \left(\frac{\sqrt{r+1}}{r} \times r \right) \left(\frac{\sqrt{r+1}}{r} - r \right) = \boxed{-\frac{1}{r}} \leftarrow \text{جواب}$$

$$\underbrace{f\left(\frac{a+1}{a-1}\right)}_{\frac{a+1}{a-1}} = \frac{\left(\frac{a+1}{a-1}\right) + 1}{\left(\frac{a+1}{a-1}\right) - 1} = \frac{a+1+a-1}{a-1-a+1} = \frac{a+1}{a-1} \quad \frac{ra}{r} = a = \boxed{a=1} \text{؟ } 0, \text{ جواب}$$

$$\Rightarrow a \in \mathbb{R} - \{1\} \leftarrow \text{جواب}$$

$$g(a) = t \quad f(t) = -r \Rightarrow t^r - r t = -r \Rightarrow t^r - r t + r = 0 = \boxed{t = r}$$

$$\Rightarrow g(a) = r \Rightarrow \sqrt{a^r - 1} = r \Rightarrow a^r - 1 = r^2 \Rightarrow \boxed{a = \pm \sqrt[r]{r^2 + 1}} \leftarrow \text{جواب}$$

$$x + y = r \Rightarrow x = 1 \Rightarrow f(r) = 1 - \omega + \gamma = \boxed{r}$$

$$x + y = -r \Rightarrow x = -\gamma \Rightarrow f(-r) = r\gamma + r_0 + \gamma = \boxed{\sqrt{r}}$$

$$\Rightarrow f(r) \times f(-r) = r \times \sqrt{r} = \boxed{1195} \leftarrow \text{جواب}$$

$$r \cos^2 x + \omega \cos x = \frac{V}{r} \Rightarrow \wedge \cos^2 x + 1 \cdot \cos x - V = 0 \Rightarrow \cos x = \left\{ \frac{\frac{r}{V}}{\frac{r}{V}}, \frac{\frac{r}{V}}{\frac{r}{V}} \right\} \checkmark$$

$$\cos x = \frac{1}{r} \Rightarrow x = \frac{\pi}{r} \Rightarrow f\left(\frac{\pi}{r}\right) = \tan^2 \frac{\pi}{r} = (\sqrt{r})^2 = \boxed{r} \leftarrow \text{جواب}$$