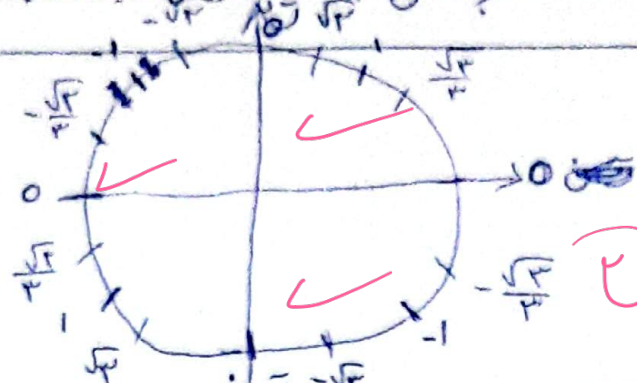
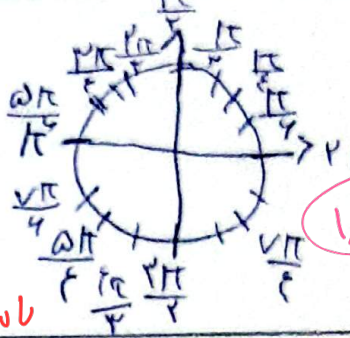


|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| <p>نام و نام خانوادگی: محمد مهدی اکرمی<br/>پاسخنامه تشریحی تکلیف شماره ۲... کلاس... پایه دهم ریاضی</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1 |
| <p>الف) <math>\frac{1}{2} + (-1) + 2(-1) = -2 + \frac{1}{2} = -\frac{3}{2}</math></p> <p>ب) <math>-\left(-\frac{\sqrt{2}}{2}\right) + \frac{\sqrt{2}}{2} - 2\left(-\frac{\sqrt{2}}{2}\right) = \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} + \sqrt{2} = 2\sqrt{2}</math></p> <p>ج) <math>-\frac{\sqrt{3}}{2} + 2\left(\frac{\sqrt{3}}{2}\right) - 2\left(-\frac{\sqrt{3}}{2}\right) = -\frac{\sqrt{3}}{2} + \sqrt{3} + \sqrt{3} = \frac{3\sqrt{3}}{2}</math></p> <p>د) <math>\cos(0) + \sin\left(\frac{\pi}{4}\right) = 1 + \frac{\sqrt{2}}{2}</math></p> <p>پایین مقصد اصلی بود نوشتن</p>  | 2 |
| <p><math>x^2 + \epsilon x = 2x + a + 2 \rightarrow a = x</math></p> <p><math>x^2 + \epsilon x = 2x + 2 \Rightarrow x^2 + \epsilon x - 2x - 2 = 0 \Rightarrow x^2 + \epsilon x - 2 = 0 \Rightarrow (x-1)(x+2) = 0</math></p> <p><math>x_1 = 1, x_2 = -2</math></p> <p><math>f(1) = 1^2 + \epsilon = a \Rightarrow f(1) = a</math></p> <p><math>a &gt; 0 \Rightarrow x_1 = 1, x_2 = -2</math></p>                                                                                                                                                                                                                                                                            | 3 |
| <p><math> x+1  &gt; 2 \Rightarrow x+1 &gt; 2 \vee x+1 &lt; -2 \Rightarrow x &gt; 1 \vee x &lt; -3</math></p> <p><math>a + 2x = 2x^2 - b \Rightarrow 2x^2 - 2x = a + b \Rightarrow 2x(x-1) = a+b</math></p> <p><math>f(-2) = 1-b</math></p> <p><math>f(-2) = a+2x \rightarrow 1-b = a+2x \Rightarrow 1-2x = a+b \Rightarrow 1x = a+b</math></p> <p>لاصط آخر مقصد</p> <p>در دو ضایع مشترک است <math>x = -3</math></p>                                                                                                                                                                                                                                                        | 4 |
| <p>الف) <math>y = \frac{1}{x(x-4)} \Rightarrow D_y = \mathbb{R} - \{0, 4\}</math></p> <p>لاصط اول مقصد آخر</p> <p>ب) <math>y = \frac{1}{2x^3 + \epsilon x^2 + 2x + \epsilon} \Rightarrow y = \frac{1}{(x-1)^2 - (x-1)(x+3)}</math></p> <p><math>D_y = \mathbb{R} - \{1\}</math></p>                                                                                                                                                                                                                                                                                                                                                                                        | 5 |

الف)  $\sqrt{x-1} \geq 0 \Rightarrow x-1 \geq 0 \Rightarrow x \geq 1$   
 $\sqrt{x-2} \geq 0 \Rightarrow x-2 \geq 0 \Rightarrow x \geq 2$

$D_y = \mathbb{R} - (-1, 1) \cup x \geq 2 \Rightarrow D_y = [2, +\infty)$

ب)  $y = \frac{\sqrt{4-2x}}{\sqrt{x-2}} \Rightarrow \begin{cases} 4-2x \geq 0 \Rightarrow 2-x \geq 0 \Rightarrow x \leq 2 \\ 4x-2 \geq 0 \Rightarrow 2x-1 \geq 0 \Rightarrow x \geq \frac{1}{2} \end{cases} \Rightarrow D_y = [\frac{1}{2}, 2]$

بسط این کسر را به صورت  $\frac{1}{\sqrt{x-2}}$  درآوریم

$\frac{\sqrt{4-2x}}{\sqrt{x-2}} \Rightarrow \begin{cases} 12-x \neq 0 \Rightarrow 12 \neq x \\ b-2 \neq 0 \Rightarrow b \neq 2 \end{cases} \Rightarrow \frac{b}{a} = \frac{4}{12} = \frac{1}{3}$

الف)  $x^2 - 13x^2 + 34 \neq 0 \Rightarrow x^2 - 13x + 34 \Rightarrow (x-9)(x-4) \Rightarrow \begin{cases} x=9 \\ x=4 \end{cases}$

$x^2 = t \Rightarrow x = 4, 9 \Rightarrow x = -2, 2, 3, -3$   
 $D = (2, +\infty) \cup (-\infty, 3) - \{0\}$

ب)  $\frac{x(x^2-2x-5)+4}{x(x^2+2x-5)-4} \geq 0$   
 $\Delta \leq 0 \Rightarrow x^2 + 2x - 5 = 0 \Rightarrow \Delta = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

الف)  $x^2[x]-4 \geq 0 \Rightarrow x^2[x] \geq 4 \Rightarrow [x] \geq \frac{4}{x^2} \Rightarrow [x] \geq 2 \Rightarrow D_y = [2, +\infty)$

ب)  $x^2[x]-5 \geq 0 \Rightarrow x^2[x] \geq 5 \Rightarrow [x] \geq \frac{5}{x^2} \Rightarrow [x] \geq 2.5 \Rightarrow D_y = [2.5, +\infty)$

الف)  $|x-2| \neq 0 \Rightarrow x \neq 2$ ,  $\frac{x+1}{x-2} \geq 0 \Rightarrow x+1 \geq 0 \Rightarrow x \geq -1$

$x^2+2x+5 \neq 0$  همیشه،  $\frac{4-x}{x^2+2x+5} \geq 0 \Rightarrow 4-x \geq 0 \Rightarrow x \leq 4$

$D_y = [-1, 4] - \{2\}$

ب)  $[x]-4 \geq 0 \Rightarrow [x] \geq 4 \Rightarrow x \geq 4$  اولی  
 $x-[x] \geq 0 \Rightarrow [x] \leq x \Rightarrow x \leq 2$  دومی

$D_y = (-\infty, 2] \cup [4, +\infty)$

$x(x^2+2x-5)-4 \neq 0 \Rightarrow x \neq 0$   
 $x \neq -$

$$-2) -C_2 \frac{\Delta r_1}{4} + g_{12} \frac{r_{12}}{3} - 3g_{12} \frac{r_{12}}{3} = -(-\sqrt{\frac{2}{3}}) + \sqrt{\frac{2}{3}} - 3(-\sqrt{\frac{2}{3}}) = \frac{5\sqrt{2}}{3}$$

$$f(n) = \begin{cases} 2n^2 - b & n \geq 1 \\ a + 2n & -3 \leq n \leq -1 \\ 2n^2 - b & n \leq -3 \end{cases}$$

۴- ضابطه‌ی تابع را باز نویسی کنید

$x = -3$  در دو ضابطه مشترک است پس:

$$a + 2(-3) = 2(-3)^2 - b$$

$$\hookrightarrow a - 6 = 18 - b \leadsto \boxed{a + b = 24}$$

$$5-ب) y = \frac{1}{2n^3 + 2n^2 + 2n + 2} \leadsto 2(n^3 + 2n^2 + n + 2) = 0$$

$$2[(n^3 + n) + (2n^2 + 2)] = 0 \leadsto 2[n(n^2 + 1) + 2(n^2 + 1)] = 0$$

$$= 2(n^2 + 1)(n + 2) = 0 \leadsto D_f = \mathbb{R} - \{-2\}$$

سهم Min در  
برون رابطه ن

$$4-ب) y = \frac{\sqrt{4-3n}}{\sqrt{4n-3}}$$

عبارت زیر را سوال باید نامشروع و عبارت صفر مخالف صفر باشد...

$$4-3n \geq 0 \rightarrow n \leq \frac{4}{3}$$

$$4n-3 > 0 \rightarrow n > \frac{3}{4}$$

$$\xrightarrow{\wedge} \frac{1}{4} < n \leq \frac{4}{3} \leadsto D_f = (\frac{1}{4}, \frac{4}{3}]$$

الف- ۸)  $y = \sqrt{\frac{n^2 - n - 4}{n^4 - 13n^2 + 34}} \geq 0 \leadsto \frac{n^2 - n - 4}{n^4 - 13n^2 + 34} \geq 0 \leadsto \frac{(n-3)(n+2)}{(n^2-9)(n^2-4)} \geq 0$

$\frac{(n-3)(n+2)}{(n-3)(n+3)(n-2)(n+2)} \geq 0 \leadsto$

|               |               |               |               |
|---------------|---------------|---------------|---------------|
| $-3$          | $-2$          | $2$           | $3$           |
| $+$           | $-$           | $-$           | $+$           |
| $\frac{+}{-}$ | $\frac{-}{+}$ | $\frac{-}{+}$ | $\frac{+}{+}$ |

$D_f = (-\infty, -3) \cup (2, 3) \cup (3, +\infty)$

ب- ۸)  $y = \sqrt{\frac{n^3 - 2n^2 - 5n + 4}{n^3 + 2n^2 - 5n - 4}} \geq 0 \leadsto$

مخرج را به صورت  $(n-1)$  می‌نویسیم

مخرج را به صورت  $(n+1)$  می‌نویسیم

$\frac{(n-1)(n^2 - n - 4)}{(n+1)(n^2 + n - 4)} \geq 0 \leadsto \frac{(n-1)(n-3)(n+2)}{(n+1)(n+3)(n-2)} \geq 0$

|               |               |               |               |               |
|---------------|---------------|---------------|---------------|---------------|
| $-3$          | $-2$          | $-1$          | $2$           | $3$           |
| $+$           | $-$           | $+$           | $-$           | $+$           |
| $\frac{+}{-}$ | $\frac{-}{+}$ | $\frac{+}{-}$ | $\frac{-}{+}$ | $\frac{+}{+}$ |

$D_f = (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty)$

ب- ۱۰)  $y = \sqrt{[n] - 4} + \sqrt{4 - [n]}$

$I \cap II \rightarrow D_f = \emptyset$  همه عددهای صحیح  $n$  از ۴ بزرگتر و ۳ کمتر باشد

$\begin{cases} [n] - 4 \geq 0 \rightarrow n \geq 4 \text{ I} \\ \quad \hookrightarrow [n] \geq 4 \\ \\ 4 - [n] \leq 0 \rightarrow n \leq 3 \text{ II} \\ \quad \hookrightarrow [n] \leq 4 \end{cases}$