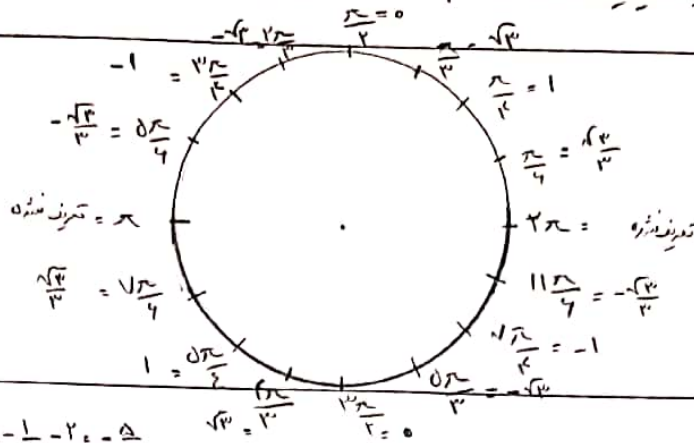


نام و نام خانوادگی ..... دیار دینیان ..... پاسخنامه تشریحی تکلیف شماره ۲ ... کلاس ... پایه دهم ریاضی ...

$$\tan = \frac{\sin}{\cos}$$



الف)  $\frac{1}{4} - 1 + 2(-1) = -\frac{1}{4} - 2 = -\frac{9}{4}$

ب)  $-(-\frac{\sqrt{3}}{4}) + \frac{\sqrt{3}}{4} - 2(-\frac{\sqrt{3}}{4}) = \frac{5\sqrt{3}}{4}$

ج)  $-\sqrt{3} + 2(\sqrt{3}) - 2(-\frac{\sqrt{3}}{4}) = 2\sqrt{3} + \frac{\sqrt{3}}{2} = \frac{5\sqrt{3}}{2}$

د)  $\cos(0) + \sin(\frac{\pi}{4}) = 1 + 1 = 2$

$$f(n) = \begin{cases} n^2 + 2n & n > a \\ 2n + a + 2 & n \leq a \end{cases}$$

$n=a \rightarrow a^2 + 2a = 2a + a + 2$   
 $a^2 + a - 2 = 0 \rightarrow a + b + c = 0 \rightarrow \begin{cases} a=1 \\ a=-2 \end{cases}$   
 $a > 0 \Rightarrow \underline{a=1}$

$$f(n) = \begin{cases} n^2 + 2n & n > 1 \\ 2n + 3 & n \leq 1 \end{cases}$$

$f(1) = 2(1) + 3 = 5$

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

① و ②  $\rightarrow n = -2$   
 $2(-2)^2 - b = a + 2(-2)$   
 $18 - b = a - 4$   
 $18 + 4 = a + b \rightarrow a + b = 22$

الف)  $y = \frac{1}{n^2 - 4n^2}$   $n^2 - 4n^2 \neq 0$   $D_f = \mathbb{R} - \{0, 2\}$   
 $n^2(n-4) \neq 0$   
 $n \neq 0, n \neq 4$

ب)  $\frac{1}{2n^2 + 4n^2 + 2n + 4} \div 2 \left( \begin{aligned} 2n^2 + 4n^2 + 2n + 4 &\neq 0 \\ \underline{2n^2 + 4n^2 + 2n + 4} &\neq 0 \\ n^2(n+2) + (n+2) &\neq 0 \end{aligned} \right)$   
 $(n+2)(n^2+1) \neq 0$   
 $n \neq -2$   
 $n^2+1=0 \rightarrow$  ریشه متعین ندارد  
 $D_f = \mathbb{R} - \{-2\}$

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <p>الف) <math>y = \sqrt{\frac{x^2-1}{x}} + \sqrt{\frac{x-2}{x}}</math></p> <p><math>\frac{x^2-1}{x} &gt; 0</math>      <math>\frac{x-2}{x} &gt; 0</math></p> <p><math>x^2-1 &gt; 0</math>      <math>x-2 &gt; 0</math></p> <p><math>x^2-1 = 0</math>      <math>x &gt; 2</math> ②</p> <p><math>x = \pm 1</math></p> <p><math>\frac{-1}{+} - \frac{+1}{+} +</math> ①</p> <p><math>(-\infty, -1] \cup [1, +\infty) \cap [2, +\infty) =</math></p> <p><math>[2, +\infty)</math></p> <p><math>D = [2, +\infty)</math></p>                                     | <p>ب) <math>\sqrt{4-3x} \rightarrow 4-3x \geq 0 \rightarrow x \leq \frac{4}{3}</math></p> <p><math>\sqrt{4x-3} \neq 0 \rightarrow 4x-3 &gt; 0 \rightarrow x &gt; \frac{3}{4}</math></p> <p><math>(-\infty, 2] \cap (\frac{3}{4}, +\infty) = (\frac{3}{4}, 2]</math></p> <p><math>D = (\frac{3}{4}, 2]</math></p> <p><math>\frac{1}{-\frac{3}{4} + \frac{3}{4}} \rightarrow (\frac{1}{2}, 2]</math></p> <p><math>\frac{4-3x}{x+2} = \frac{4x-3}{x+1}</math></p> | 6  |
| <p><math>y = \sqrt{4x-a} + \sqrt{b-3x}</math></p> <p><math>D = \{x\} \rightarrow 0 \leq x \leq \frac{a}{4}</math></p> <p><math>4x-a \geq 0</math>      <math>b-3x \geq 0</math></p> <p><math>x \geq \frac{a}{4}</math> ①      <math>\frac{b}{3} \geq x</math> ②</p> <p><math>\uparrow</math></p> <p>①, ② <math>\frac{a}{4} \leq x \leq \frac{b}{3} = [\frac{a}{4}, \frac{b}{3}]</math></p>                                                                                                                                                                | <p><math>x=2 \rightarrow \frac{a}{4} = \frac{b}{3} = 2</math></p> <p><math>a = 2 \times 4 = 8</math></p> <p><math>b = 2 \times 3 = 6</math></p> <p><math>\frac{b}{a} = \frac{6}{8} = \frac{3}{4}</math></p>                                                                                                                                                                                                                                                    | 7  |
| <p><math>y = \sqrt{\frac{x^2-x-6}{x^2-13x^2+34x-12}}</math></p> <p><math>x^2-13x^2+34x-12 \neq 0</math></p> <p><math>(x-3)(x+2) = 0</math></p> <p><math>x^2-x-6 \geq 0</math></p> <p><math>x^2-13x^2+34x-12 \geq 0</math></p> <p><math>x^2 = t</math></p> <p><math>t^2-13t+34 \geq 0</math></p> <p><math>(t-4)(t-9) \geq 0</math></p> <p><math>t \leq 4</math> or <math>t \geq 9</math></p> <p><math>x = \pm 2, \pm 3</math></p> <p><math>D = (-\infty, -3) \cup (2, +\infty) - \{x\}</math></p>                                                          | <p>ب) <math>y = \sqrt{\frac{x^2-2x^2-\Delta x+4}{x^2+2x^2-\Delta x-4}}</math></p> <p><math>\frac{x^2-2x^2-\Delta x+4}{x^2+2x^2-\Delta x-4} \geq 0</math></p> <p>صورت <math>\rightarrow</math> <math>x^2-2x^2-\Delta x+4 = 0</math></p> <p>مخرج <math>\rightarrow</math> <math>x^2+2x^2-\Delta x-4 = 0</math></p> <p><math>x = 1, 2, -2</math></p> <p><math>x = -1, 2, 3, 2</math></p> <p><math>D = (-\infty, -3) \cup (2, +\infty) - \{x\}</math></p>          | 8  |
| <p>الف) <math>y = \sqrt{x[n]-2}</math></p> <p><math>x[n]-2 \geq 0</math></p> <p><math>[n] \geq 2</math></p> <p><math>n \geq 2</math></p> <p><math>D = [2, +\infty)</math></p>                                                                                                                                                                                                                                                                                                                                                                             | <p>ب) <math>\sqrt{x[n]-2}</math></p> <p><math>x[n]-2 \geq 0</math></p> <p><math>[n] \geq 2</math></p> <p><math>n \geq 2</math></p> <p><math>D = [2, +\infty)</math></p>                                                                                                                                                                                                                                                                                        | 9  |
| <p>الف) <math>y = \sqrt{\frac{n+1}{n-3}} + \sqrt{\frac{4-n}{n^2+n+1}}</math></p> <p><math>\frac{n+1}{n-3} \geq 0</math>      <math>\frac{4-n}{n^2+n+1} \geq 0</math></p> <p><math>n+1 \geq 0</math>      <math>4-n \geq 0</math></p> <p><math>n \geq -1</math>      <math>n \leq 4</math></p> <p><math>\frac{-1}{+} - \frac{+}{+} +</math></p> <p><math>(-\infty, -1] \cup (3, +\infty)</math> ①</p> <p><math>\frac{4-n}{n^2+n+1} \geq 0</math></p> <p><math>n \leq 4</math> ②</p> <p><math>\uparrow</math></p> <p>①, ② <math>D = [4, +\infty)</math></p> | <p>ب) <math>\sqrt{x[n]-2}</math></p> <p><math>x[n]-2 \geq 0</math></p> <p><math>[n] \geq 2</math></p> <p><math>n \geq 2</math></p> <p><math>D = [2, +\infty)</math></p>                                                                                                                                                                                                                                                                                        | 10 |

صورت:  $x^2-2x^2-\Delta x+4$  مخرج:  $x^2+2x^2-\Delta x-4$

$\frac{x^2-2x^2-\Delta x+4}{x^2+2x^2-\Delta x-4} \geq 0$

$(x-1)(x^2-n-4) = (n-1)(n-3)(n+2)$

$(n-1)(n-3)(n+2) \geq 0$

$n \geq 2$

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