

نام و نام خانوادگی ... البیاء علی ... تکلیف شماره 7 کلاس ... درازد ...

الف) $r \sin^2\left(n + \frac{\pi}{r}\right) \cdot 1$
 $[0 > 1]$

$0 \leq r \sin^2\left(n + \frac{\pi}{r}\right) \leq r \rightarrow -1 \leq r \sin^2\left(n + \frac{\pi}{r}\right) \leq 1$

$R_f = [-1, 1]$

ب) $g(n) = 3 \cos^3 n - 1$

$-1 \leq \cos^3 n \leq 1 \rightarrow -3 \leq 3 \cos^3 n \leq 3$

$-4 \leq 3 \cos^3 n - 1 \leq 2$

$R_g = [-4, 2]$

2

$y = \frac{n}{|n|} + [n] \rightarrow D = \mathbb{R} \setminus \{0\}$

$-3 \leq n < -2 \rightarrow \frac{n}{|n|} + (-3) = -4$

$-2 \leq n < -1 \rightarrow \frac{n}{|n|} + (-2) = -3$

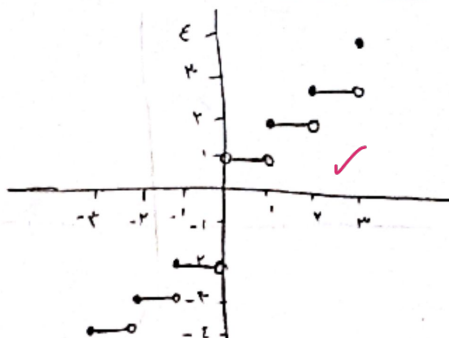
$-1 \leq n < 0 \rightarrow \frac{n}{|n|} + (-1) = -2$

$0 \leq n < 1 \rightarrow \frac{n}{|n|} + (0) = 1$

$1 \leq n < 2 \rightarrow \frac{n}{|n|} + 1 = 2$

$2 \leq n < 3 \rightarrow \frac{n}{|n|} + 2 = 3$

$n \geq 3 \rightarrow \frac{n}{|n|} + 3 = 4$

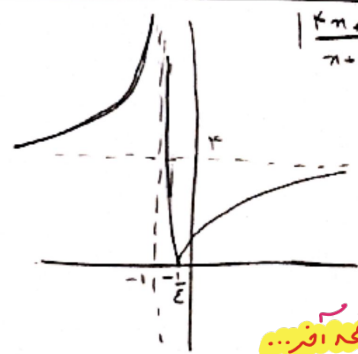
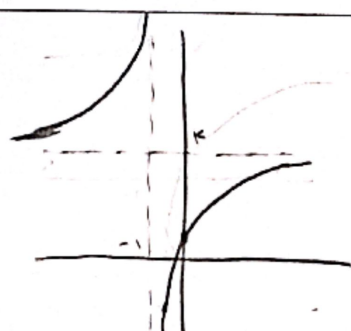


2

$y = \left| \frac{n+1}{n+3} \right|$

$\frac{n+1}{n+3}$

محدوده!
 چپ = -3
 راست = 1
 افقی



1, 15

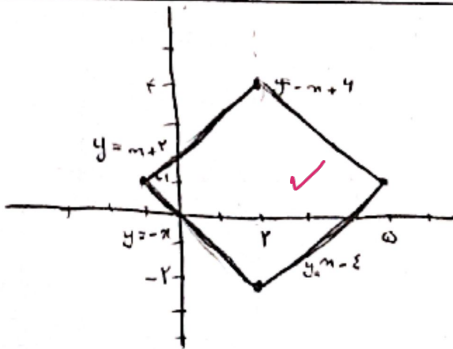
$|x-2| + |y-1| = 3$

$x \geq 2, y \geq 1 \rightarrow x-2+y-1=3 \rightarrow y=x+4$

$x \geq 2, y < 1 \rightarrow x-2-y+1=3 \rightarrow y=x-4$

$x < 2, y \geq 1 \rightarrow -x+2+y-1=3 \rightarrow y=x+4$

$x < 2, y < 1 \rightarrow -x+2-y+1=3 \rightarrow y=-x$



2

الف) $g(n) = n + \frac{1}{n} + 2\sqrt{n + \frac{1}{n}}$

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

$\max \sqrt{n + \frac{1}{n}} \rightarrow \max n + \frac{1}{n} = \infty \rightarrow +\infty^2 + 2\infty = \infty$

$\min \sqrt{n + \frac{1}{n}} \rightarrow \min n + \frac{1}{n} = 2 \rightarrow \sqrt{2^2 + 2\sqrt{2}} = 2 + \sqrt{2}$

$-\frac{b}{2a} = -\frac{1}{2} = -0.5$

$R_f = [2 + \sqrt{2}, \infty)$

ب) $g = (1 - \sin n)(1 + \sin n)$

$g = 1 - \sin^2 n = \cos^2 n$

$\max \cos^2 n = 1$

$\min \cos^2 n = 0$

$-\frac{b}{2a} = -\frac{1}{2} = -0.5$

$R_f = [0, 1]$

2

5

$$f(n) = -\frac{1}{n}n + 1 \rightarrow D = \{1, 2, \dots, 9\}$$

$$f(1) = -\frac{1}{1} + \frac{1}{1} = \frac{1}{1}$$

$$f(2) = -\frac{1}{2} + \frac{1}{2} = \frac{1}{2}$$

$$f(9) = -\frac{1}{9} + \frac{1}{9} = \frac{1}{9}$$

$$Rf = \left\{ \frac{1}{1}, \frac{1}{2}, \dots, \frac{1}{9}, \frac{1}{9} \right\}$$

$$S = \frac{n}{r} (ra_1 + (n-1)d) = \frac{9}{1} \left(\frac{1}{9} + \frac{1}{9} \right)$$

$$a_1 = \frac{1}{9}, d = \frac{1}{9} \Rightarrow \frac{9}{1} \times \frac{1}{9} = 1$$

$$f(n) = \sqrt{an^2 + bn + c} \rightarrow Df = [r, +\infty)$$

$$f(x) = 1$$

$$f(x) = 0 \rightarrow \sqrt{bx + c} = 0 \rightarrow bx + c = 0$$

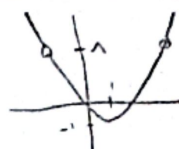
$$f(x) = 1 \rightarrow \sqrt{bx + c} = 1 \rightarrow bx + c = 1$$

$$g(n) = \sqrt{bn^2 + an + c} = \sqrt{n^2 + 2}$$

$$y = n^2 + 2 \rightarrow \begin{cases} -\frac{b}{2a} = 0 \\ y \end{cases} \rightarrow [2, +\infty)$$

$$Rg = R\sqrt{n^2 + 2} = [2, +\infty)$$

$$f(n) = \frac{n^2 - 2n}{n + 2} = \frac{n(n-2)}{n+2} = \frac{n(n+1)(n-2)}{(n+2)} = n^2 - 2n \rightarrow$$



$$n^2 - 2n = 1 \rightarrow n^2 - 2n - 1 = 0 \rightarrow (n-2)(n+2) = 0 \rightarrow n = 2, -2$$

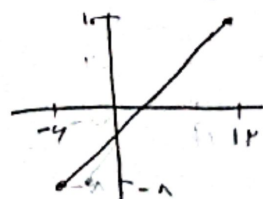
$$Df = R - \{-2, 2\} \rightarrow a = -2, b = 2$$

$$f\left(\frac{a+b}{2c}\right) = f\left(\frac{2}{-2}\right) = f(-1) = (-1)^2 - 2(-1) = 3$$

$$y = \sqrt{n^3 + an^2 + bn - 1} \rightarrow n^3 + an^2 + bn - 1 = (n+2)^3$$

$$(n+2)^3 = n^3 + 6n^2 + 12n - 1 \rightarrow a = 6, b = 12$$

$$Df = [-4, 12]$$



$$Rf = [-1, 10]$$

$$y = [n] + [n + \frac{1}{r}]$$

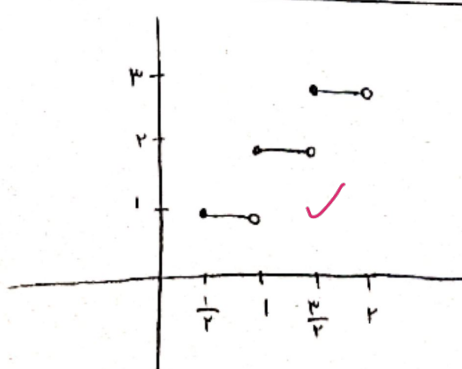
$$\left[\frac{1}{r}, 1\right) \rightarrow [n] = 0, [n + \frac{1}{r}] = 1$$

$$\left[1, \frac{2}{r}\right) \rightarrow [n] = 1, [n + \frac{1}{r}] = 2$$

$$\left[\frac{2}{r}, 3\right) \rightarrow [n] = 2, [n + \frac{1}{r}] = 3$$

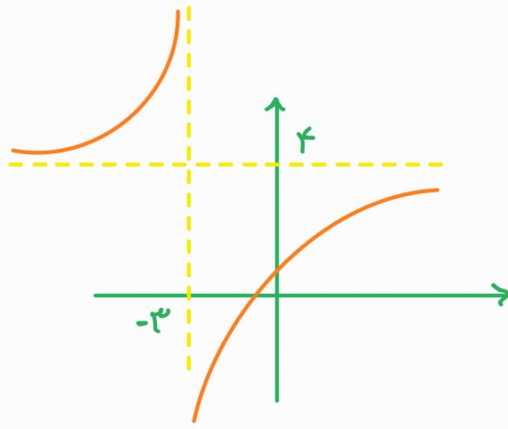
$$\left[\frac{3}{r}, 4\right) \rightarrow [n] = 3, [n + \frac{1}{r}] = 4$$

$$\left[\frac{4}{r}, 5\right) \rightarrow [n] = 4, [n + \frac{1}{r}] = 5$$



$$Rf = [1, 4]$$

$$y = \frac{x+1}{x+3}$$



قدر مطلق دور خط، مقعر ها رو پاد میسنه قریبه
میسنه بالات

$$y = \left| \frac{x+1}{x+3} \right|$$

