

تکالیف و

روز دهم A دفتر

18/5

مریم توکلی

(مسئله 1)

$$f(m+1) + f(m+r) = r_m + f(r)$$

$$y = \sqrt{f(m) - n^r}$$

$$f(m) \rightarrow an+b$$

$$f(m+1) = a(m+1)+b \rightarrow r_m + a + b$$

$$f(m+r) = a(m+r)+b \rightarrow an + ra + b$$

$$f(r) = ra + b$$

$$\rightarrow r_m + a + b + an + ra + b = r_m + ra + b \rightarrow r_m + \cancel{ra} + \cancel{ra} + b = r_m + \cancel{ra} + b$$

$$\rightarrow r_m + b = r_m + b \Rightarrow r_m + b = r_m \rightarrow a = 1$$

$$b = 0$$

$$\Rightarrow f(m) = m$$

$$y = \sqrt{m - n^r} \rightarrow \text{ext} \left| \begin{array}{l} -\frac{b}{ra} = -\frac{1}{-r} = \frac{1}{r} \\ \frac{1}{r} - \frac{1}{\epsilon} = \frac{1}{\epsilon} \end{array} \right. \rightarrow R_f = (-\infty, \frac{1}{\epsilon}]$$

محدوده
max
(n^r)

$$R_f = [0, \frac{1}{\epsilon}]$$

$$f(m) = \frac{n^r - \epsilon m}{n+r}$$

$$D_f = \mathbb{R} - \{a, b\}$$

$$R_f = [0, +\infty) - \{1\} \quad (r \neq 0)$$

$$f\left(\frac{a+b}{rc}\right) = ?$$

$$\rightarrow \frac{n(n-r)(n+r)}{n+r} = n^r - r_m \rightarrow \text{ext} \left| \begin{array}{l} -\frac{b}{ra} = 1 \\ 1 - r = -1 \end{array} \right.$$

$$R_f = [-1, +\infty) - \{1\} \rightarrow n^r - r_m \neq 1 \rightarrow n^r - r_m - 1 \neq 0$$

$$\begin{array}{l} \epsilon \\ c = -1 \end{array}$$

$$\rightarrow (n-\epsilon)(n+r) \neq 0 \rightarrow \frac{n+\epsilon}{n+r} \rightarrow a = -r$$

$$b = \epsilon$$

$$\frac{a+b}{rc} = \frac{-r+\epsilon}{-r} = -1 \rightarrow f(-1) = (-1)^r - r(-1) = r$$

در سطح نیز بود!

آپادانا

$$f(n) = \sqrt[3]{n^3 + an^2 + bn - 1} \quad Df = [a, b] \quad \text{سوال ۳}$$

تابع قطعی است. پس و هم اصلی که $an^2 + b$ است. با توجه به عبارت زیر رادیکال می توان حدس زد که در زیر رادیکال $(n+2)^3$ داریم که پس از ساده سازی، به فرم تابع قطعی در می آید!

$$f(n) = \sqrt[3]{(n-2)^3} \rightarrow n^3 - 4n^2 + 12n - 1 \rightarrow \begin{cases} a = -4 \\ b = 12 \end{cases}$$

$$Df = [-4, 12] \quad \checkmark$$

$$f(n) = n - 2 \quad \begin{matrix} n_{\min} = -4 \\ n_{\max} = 12 \end{matrix} \rightarrow y_{\min} = -6 \quad y_{\max} = 10$$

$$Rf = [-6, 10] \quad \checkmark$$

در توان ها اگر ی پایه پایه منفی باشد

$$y_1 = \left(\frac{n+1}{1-n} \right)^{\frac{1}{2}}$$

$$y_2 = \frac{an^2 - 1}{n^2 + b}$$

$$\frac{a0+b}{c0+d} \quad \text{فرم}$$

سوال ۴

$$Df_1 = Rf_2$$

$$a+b=5$$

سوال ۵

$$\frac{n+1}{1-n} \geq 0 \rightarrow Df = [-1, 1]$$

$$y_1 = \sqrt{\frac{n+1}{1-n}} \rightarrow n \neq 1 \rightarrow Df_1 = \mathbb{R} - \{1\} \quad b=1$$

$$y_2 = \frac{an^2 - 1}{n^2 + b} \rightarrow yn^2 + by = an^2 - 1 \rightarrow n^2(y-a) = -(yb+1)$$

$$\Rightarrow n^2 = \frac{1+by}{a-y} \rightarrow \frac{1}{a} = \frac{b}{-1} \Rightarrow ab = -1$$

$$a+b = 1-1 = 0$$

$$y \neq a \Rightarrow a = 1$$

$$\rightarrow b = -1$$

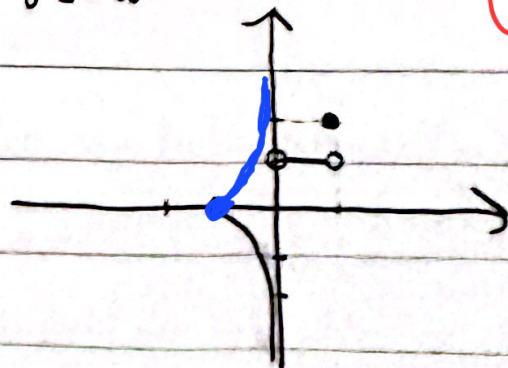
$$y = \frac{[n]}{n} + \frac{|n|}{n} \quad [-1, 1]$$

سوال ۶

$$-1 \leq n < 0 \rightarrow [n] = -1 \rightarrow \frac{-1}{n} - 1 = y \rightarrow \begin{matrix} -1 \rightarrow 0 \\ 0 \rightarrow -\infty \end{matrix}$$

$$0 \leq n < 1 \rightarrow [n] = 0 \rightarrow y = 1$$

$$n=1 \rightarrow y=2$$



آپادانا

$$[n] + [n + \frac{1}{p}] \left(\frac{1}{p}, r\right)$$

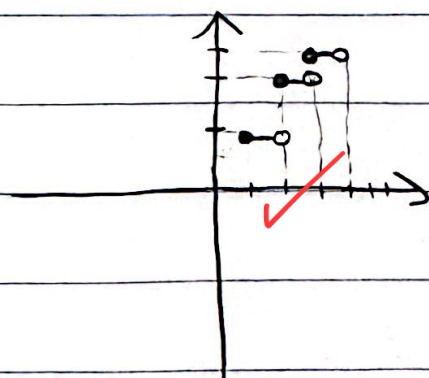
(سوال 40)

$$\frac{1}{p} < n < 1 \rightarrow 1 \leq n + \frac{1}{p} < \frac{p}{p} \Rightarrow [n] = 0 \Rightarrow y = 1$$

$$1 < n < \frac{p}{p} \rightarrow \frac{p}{p} \leq n + \frac{1}{p} < r \Rightarrow [n] = 1 \Rightarrow y = r$$

$$\frac{p}{p} \leq n < r \rightarrow r \leq n + \frac{1}{p} < \frac{p}{p} \Rightarrow [n] = 1 \Rightarrow y = p$$

(2)



مربعی که در آن خط قرمز

$$y = \left| \frac{n+1}{an+r} \right| \quad (b, +\infty) \quad a-b=?$$

(سوال 40)

$$y < 1 \rightarrow \left| \frac{n+1}{an+r} \right| < 1 \Rightarrow \frac{(n+1)^r}{(an+r)^r} < 1$$

(2)

$$\Rightarrow (n+1)^r (an+r)^r \Rightarrow n^r + r n^{r-1} < a^r n^r + 4 a n + 9$$

$$(b, +\infty) \rightarrow a^r = 1 \Rightarrow \underline{a=1} \Rightarrow (n+1)^r < (n+r)^r \Rightarrow n^r + r n^{r-1} < n^r + 4 n + 9$$

$$\Rightarrow n > -r \Rightarrow D_f = (-r, +\infty)$$

$$a = -1 \Rightarrow (n+1)^r < (-n+r)^r \Rightarrow n^r + r n^{r-1} < n^r - 4 n + 9$$

$$\Rightarrow \underline{a=1}, \underline{b=-r} \rightarrow a-b = 1+r = \underline{p}$$

جواب

پایان

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

$\downarrow$ $x=2$ $\downarrow$ $y=1$

(10 سوال)

$$x > 2, y > 1 \Rightarrow x-2+y-1=2 \Rightarrow y=5-x$$

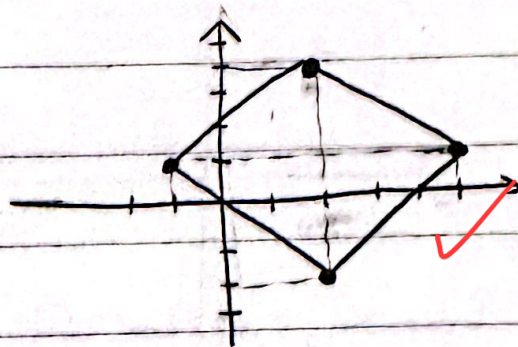
$$x < 2, y > 1 \Rightarrow -x+2+y-1=2 \Rightarrow y=x+3 \rightarrow x=2 \Rightarrow x=2, y=5$$

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

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

$$\text{افراد} \rightarrow x=0 \Rightarrow x=0, y=1$$

(1)

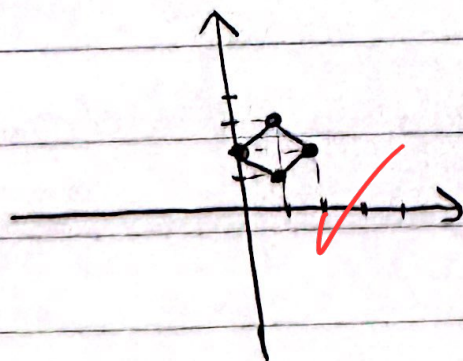


(10 سوال)

$$\text{الف) } |x-1| + |y-2| = 1 \quad x=1 \rightarrow (1, 0) \text{ و } (1, 2)$$

$\downarrow$ $\downarrow$

$$y=2 \rightarrow (2, 2) \text{ و } (0, 2)$$

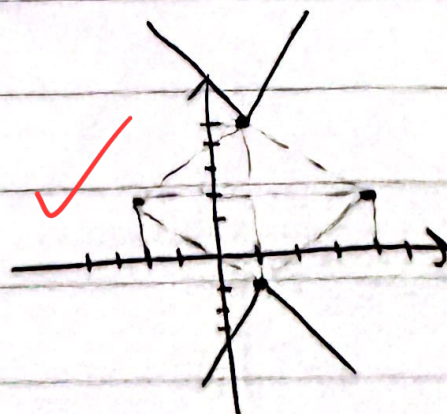


(2)

$$\text{ب) } |x-1| - |y-2| = -2$$

$$\rightarrow |y-2| - |x-1| = 2$$

$\downarrow$ $\downarrow$



افراد

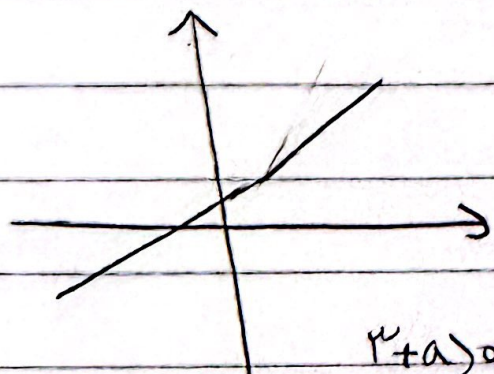
$$y = rx + |a|x + b \quad R_f = \mathbb{R}$$

(سوال 1)

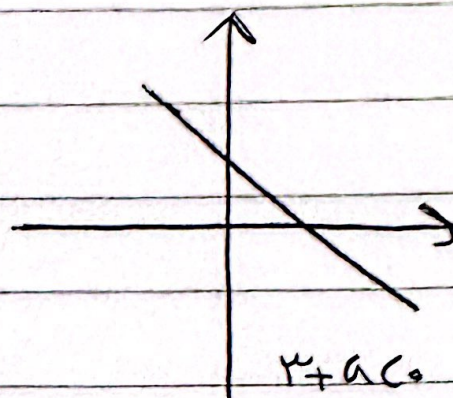
$$\rightarrow y = (a+r)x + b$$

$$\rightarrow y = (r-a)x - b$$

(2)



≤



$$\Rightarrow a > -r, r-a > 0 \Rightarrow a < r$$

$$\Rightarrow -r < a < r \Rightarrow a \in (-r, r)$$

✓

$$\Rightarrow a < -r, r-a < 0 \Rightarrow a > r$$

$$\Rightarrow \emptyset$$