

نام و نام خانوادگی پاسبان
 پاسنامه تشریحی تکلیف شماره ۲۰ کلاس دوازدهم - مسیحی

$$f(x) = (x+1)^2 + (3x-1)^2 + mx^2 + nx + mn = x^2 + 1 + 2x + 9x^2 + 1 - 4x + mx^2 + nx + mn = x^2(10+m) + x(-2+n) + 2+mn$$

تابع ثابت $\Rightarrow m = -10, n = 4 \Rightarrow f(x) = -3x$

$$g(x) = f(f, m), (n, p+1), (p+2, -1), (-9, p+k) \Rightarrow g(x) = f(4, -10), (4, p+1), (p+2, -1), (-9, p+k)$$

$$p+1 = -10 \Rightarrow p = -11 \Rightarrow p+k = -1 \Rightarrow k = 10 \Rightarrow k+m+n+p = 10 - 10 + 4 - 11 = -7$$

$$f(x) = \frac{2x^2+1}{4-2[-x]}$$

$$4-2[-x] \neq 0 \Rightarrow [-x] \neq 2 \Rightarrow x \neq -2$$

$$\Rightarrow D_f(x) = R - \{-2\}$$

$$y = \sqrt{\frac{x-2}{x^2-2x-8}} \Rightarrow \frac{x-2}{(x^2-4)(x+2)} \geq 0$$

$$y \mid \begin{array}{ccc} -2 & 2 & -2 \\ - & + & - \end{array}$$

$$D_y = (-2, +\infty) - \{2\}$$

$$f(x) = \frac{\sqrt{|x-2|-x^2}}{|x|-1} \quad |x|-1 \neq 0 \Rightarrow x \neq \pm 1$$

$$|x-2|-x^2 \geq 0 \Rightarrow x-2 \geq x^2 \Rightarrow x^2-x+2 \leq 0$$

$$\Rightarrow (x+2)(x-1) \leq 0 \Rightarrow -2 \leq x \leq 1$$

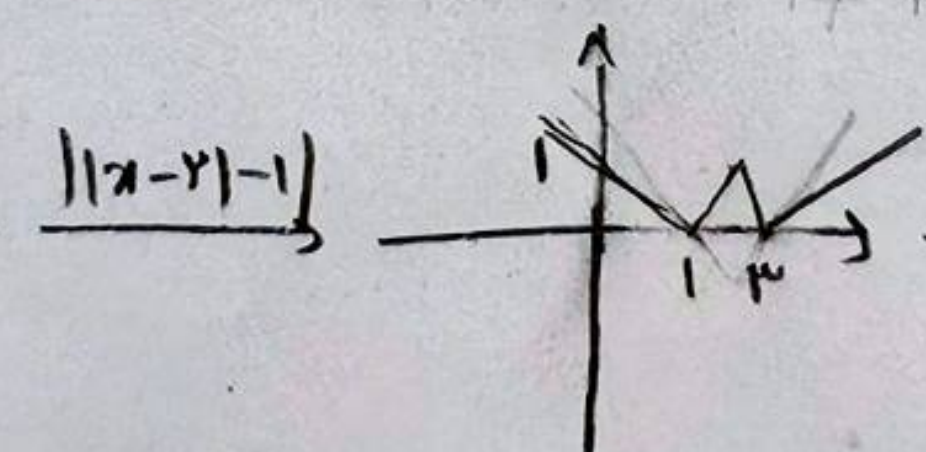
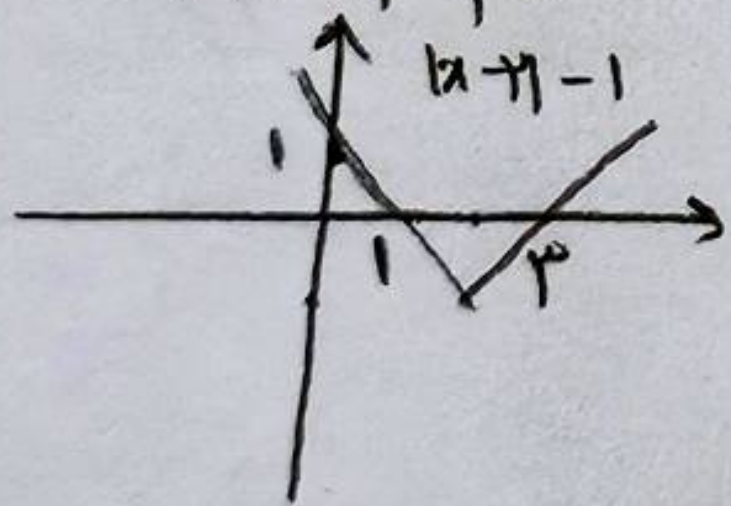
$$*n** = D_f(x) = [-2, 1] - \{-1\}$$

$$f(x) = \frac{\sqrt{x(x^2-1)}}{\sqrt{|x|+x}} \Rightarrow x(x^2-1) \geq 0$$

$$|x|+x > 0 \Rightarrow x > -|x| \Rightarrow R^+$$

$$*n** = [1, +\infty) = D_f(x)$$

$$y = \frac{1}{||x-2|-1|-k} \Rightarrow ||x-2|-1|-k \neq 0$$



$$y = \frac{1}{||x-2|-1|-1} \Rightarrow k=1$$

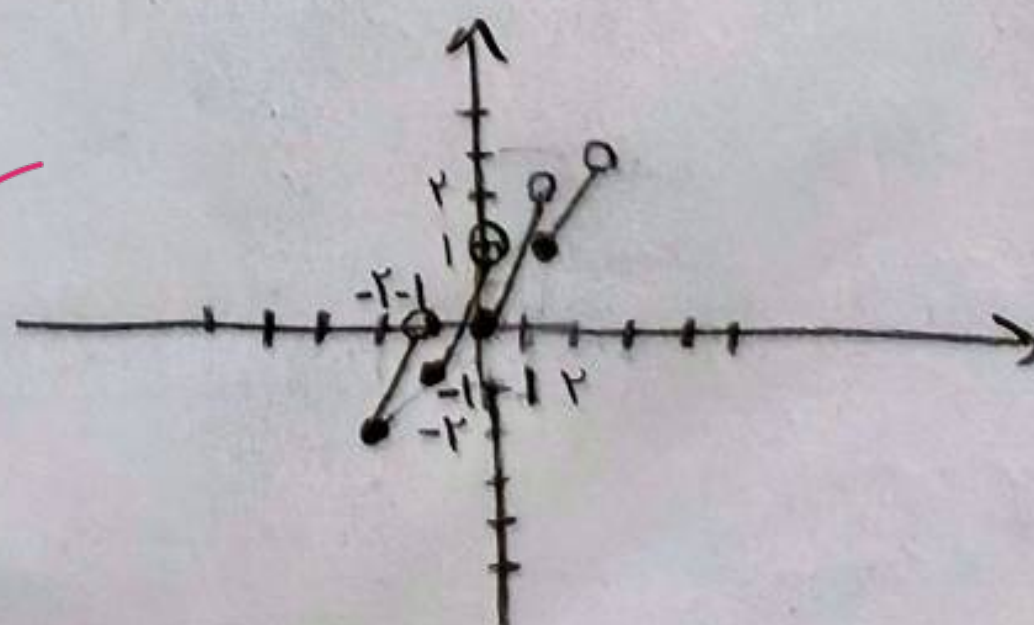
$$y = 2x - [x]$$

$$-2 \leq x < -1 \Rightarrow y = 2x + 2$$

$$-1 \leq x < 0 \Rightarrow y = 2x + 1$$

$$0 \leq x < 1 \Rightarrow y = 2x$$

$$1 \leq x < 2 \Rightarrow y = 2x - 1$$



$$f(x) = \frac{x^2 - (a+b)x + ab}{x+a} + b \stackrel{y=x}{=} \frac{(x-b)(x-a)}{x+a} + b \Rightarrow a = -3, b = 1 \text{ یا } a = -1, b = 3$$

$$a-b = -1-3 = -4 \text{ یا } -3-1 = -4 \Rightarrow a-b = \{-4\} \checkmark$$

۲
۹

$$g(x) = f(x) \stackrel{x=0}{\Rightarrow} x+c = \frac{x^2 + px^2 - x - p}{x^2 - 1} \Rightarrow c = p$$

$$\text{If } x=b \Rightarrow x+c = \frac{ax+p}{x+b} \stackrel{x=1}{\Rightarrow} p = \frac{a+p}{1+b} \Rightarrow p+pb = a+p \Rightarrow a = pb+1$$

$$\text{If } x=-1 \Rightarrow 1 = \frac{p-a}{b-1} \Rightarrow b-1 = p-a \Rightarrow b-1 = p-pb-1 \Rightarrow b = \frac{1}{p} \Rightarrow a = \frac{a}{p} - 1$$

$$b+c = \frac{1}{p} + p = \frac{a}{p}$$

۲
۷

$$D_f \cdot g = D_f \cdot D_g = 1 \Rightarrow f \cdot g = \sqrt{x-pa} + pk - p - \sqrt{pa - \frac{b}{p} - k} = p - p + 1 = \boxed{1}$$

$$g(x) = \sqrt{b-fx + pk} \Rightarrow b-fx \geq 0 \Rightarrow x \leq \frac{b}{f} \Rightarrow \left. \begin{array}{l} \frac{b}{f} = \frac{pa}{f} = 1 \Rightarrow b = p, a = \frac{f}{p} \\ f(x) = \sqrt{x-pa} + k - 1 \Rightarrow pa - pa \geq 0 \Rightarrow x \geq \frac{pa}{f} \end{array} \right\}$$

۲
۱

$$D_f \cdot g = D_f \cdot D_g \quad g(x) = \sqrt{px+p} \Rightarrow px+p \geq 0 \Rightarrow x \geq -1 = D_g \Rightarrow D_f = x \in V = \mathcal{D}(g)$$

$$= \sqrt{m-x} + n \Rightarrow m = V$$

$$f(p) - g(p) = 4\sqrt{p} \Rightarrow f(p) = 4\sqrt{p} \Rightarrow \sqrt{V-p} + n = 4\sqrt{p} \Rightarrow n = 4\sqrt{p} - \sqrt{V-p}$$

۲
۹

$$m+n = V + 4\sqrt{p} - \sqrt{V-p} = \boxed{V + 4\sqrt{p}}$$

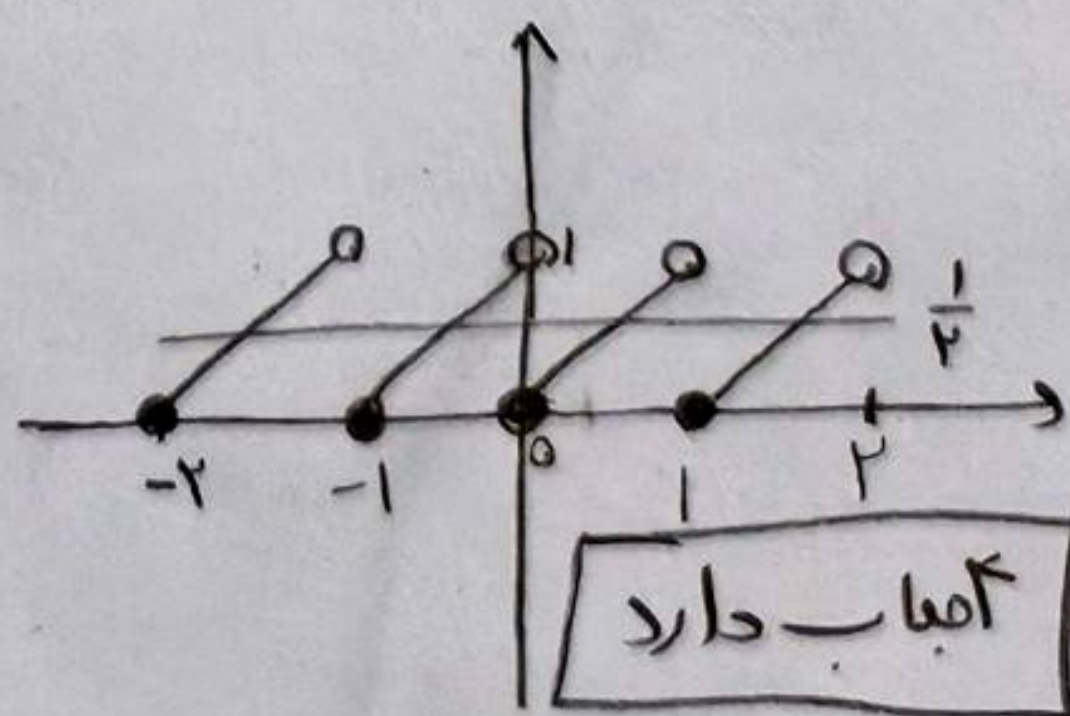
$$y = (-1)^p (x - [x]) = \frac{1}{p} \Rightarrow x - [x] = \frac{1}{p}$$

$$-1 \leq x < 0 \Rightarrow y = x + p$$

$$-1 \leq x < 0 \Rightarrow y = x + 1$$

$$0 \leq x < 1 \Rightarrow y = x$$

$$1 \leq x < 2 \Rightarrow y = x - 1$$



۲
۱۰