

«تلفیق مسائل 27»

«اجابتی دو هم دفتر B»

1A

سوال 1

الف)  $(9, x+2y) - (3x-y, -4) \Rightarrow 9 = 3x-y \quad -4 = x+2y$

$(3x-y=9) \times 2 \quad 4x-2y=18 \quad 9=4-y$   
 $x+2y=-4 \quad x+2y=-4 \quad 9-y=-y \rightarrow y=-3$

$4x = 18 \rightarrow x=4.5$

$\frac{x}{y} = \frac{4.5}{-3} = -1.5$

ب)  $(-1, -3), (\frac{a}{x}, \frac{b}{y}, \frac{a}{x}, \frac{b}{y})$

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$\frac{1}{x} - \frac{1}{y} = -1 \Rightarrow \frac{y-x}{xy} = -1 \rightarrow y-x = -xy$

$\frac{a}{x} - \frac{b}{y} = -3 \Rightarrow \frac{ay-bx}{xy} = -3 \rightarrow ay-bx = -3xy$

$x-y = -xy \quad a-b = -3 \rightarrow a = b-3$

$ay-bx = -3xy \Rightarrow 2a-7b = -1$

$\frac{1}{y} = -1 \rightarrow y = -1$

$\frac{1}{x} = -1 \rightarrow x = -1$

$2(b-3) - 7b = -1 \Rightarrow -5b = -5 \Rightarrow b=1$

$2b - 12 - 7b = -1 \Rightarrow -5b = 11 \Rightarrow b = -2.2$

$b = -1 \quad a = -10$

$\frac{x}{y} = \frac{-1}{-1} = 1$

$f = \{(a, 2a), (1, a+1), (1, -2), (2, b)\}$

سوال 2

$a+1 = -2 \rightarrow a = -3$

$\frac{1}{1} - \frac{1}{2} = \frac{2-1}{2} = \frac{1}{2}$

$f = \{(-3, -4), (1, -2), (1, -2), (2, b)\}$

$\frac{f(a)}{-4} + \frac{f(2)}{2b} = \frac{f(1)}{-4} \Rightarrow -4 + 2b = -4$

$-4 + 4 = 2b \rightarrow b = 0$

Subject.

سوال ۳  
 $f = f(-1, m^2 - 3m), (3, 5), (-1, -2), (m+1, 4), (2, 4), (m^2 + 2, m+1)$

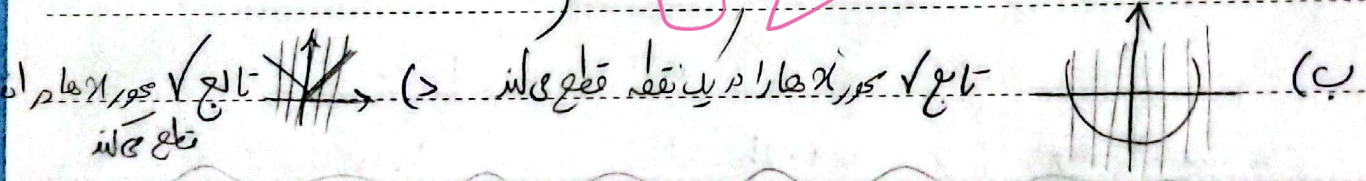
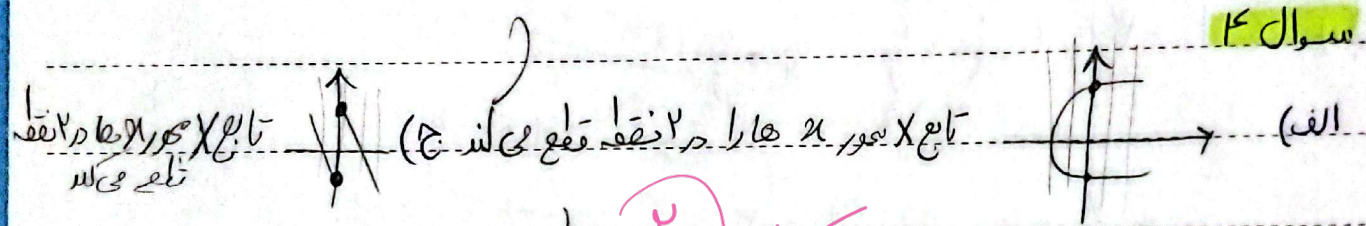
$m^2 - 3m = -2 \rightarrow m^2 - 3m + 2 = 0 \rightarrow (m-2)(m-1) = 0$   
 $m = 2, m = 1$

$\{(-1, -2), (3, 5), (-1, -2), (2, 4), (2, 4), (3, 5)\}$  ۱، ۱، ۵

$\{(-1, -2), (3, 5), (-1, -2), (2, 4), (4, 9)\}$

$m = 2$  ✓

سوال ۴



سوال ۵

الف)  $y = -\sqrt{x+1}$   $x+1 \geq 0 \rightarrow x \geq -1$   
 تابع  $\sqrt{x}$  → برای هر مقدار  $x$  یک مقدار  $y$  درست می آید

۱، ۵

ب)  $x = \frac{y}{\sqrt{1-y^2}}$   $1-y^2 > 0 \rightarrow 1 > y^2 \rightarrow 1 > |y| < 1$   
 $1-y^2 \neq 0 \rightarrow 1+y^2 \rightarrow y \neq \pm 1$

$x^2 = \frac{y^2}{1-y^2} \rightarrow y = \pm \frac{\sqrt{x^2}}{1+x^2} \rightarrow y = \frac{\pm |x|}{\sqrt{1+x^2}}$  تابع  $x$   
 برای یک مقدار  $x$  دو مقدار  $y$  وجود دارد

سوال ۱۰  
 $\frac{fx^2 - ax + c + 1}{bx + 3} = x \rightarrow \frac{fx^2 - ax + c + 1}{bx + 3} = bx^2 + 3x$

$b = 4, a = +3, c + 1 = 0 \rightarrow c = -1$  ۱، ۱، ۵  
 $a + b + c = +3 + 4 - 1 = 6$

الف)  $|y| = x \rightarrow x \geq 0$  <sup>مقادیر</sup>  $|y| = x$   $| -y | = x$  برای  $x$  مقدار  $y$  وجود دارد. (تابع  $x$ )

ب)  $y^3 + 3y^2 + 3y + x^3 + x = 0$

$(y+1)^3 - 1 + x^3 + x = 0 \rightarrow (y+1)^3 = 1 - x^3 - x$  (تابع  $\sqrt{\quad}$ )

$y+1 = \sqrt[3]{1-x^3-x} \rightarrow y = \sqrt[3]{1-x^3-x} - 1$

برای هر مقدار  $x$ ، برای این عبارت حاصل حقیقی مقادیر خواهیم داشت

$f(x) = \frac{x^2 + \epsilon x + \omega}{x^2 + \epsilon x + \nu}$   $f(\sqrt{3} - 2)$

$\frac{(\sqrt{3}-2)^2 + \epsilon(\sqrt{3}-2) + \omega}{(\sqrt{3}-2)^2 + \epsilon(\sqrt{3}-2) + \nu} = \frac{3 + \epsilon - \epsilon\sqrt{3} + \epsilon\sqrt{3} - 1 + \omega}{3 + \epsilon - \epsilon\sqrt{3} + \epsilon\sqrt{3} - 1 + \nu} = \frac{\nu - 1 + \omega}{\nu - 1 + \nu} = \frac{\epsilon}{4} = \frac{2}{4}$

$y - 3x + a = 0$   $(-1, -\epsilon) \rightarrow -f(-1) + a = 0 \rightarrow a = -11$

$f(x) = x^3 + (-11)x + b \Rightarrow -1 = -9 + \epsilon\epsilon + b \rightarrow b = 19$  (1/8)

$y = x^3 - 11x + 19 \rightarrow y = 3x + 11$

$x^3 - 11x + 19 = 3x + 11 \rightarrow x^3 - 14x + 8 = 0$   
 $(x+2)(x^2 - 2x + 4) = 0 \Rightarrow x = -2$

$a + b = 2a \rightarrow a + b = 2a \rightarrow b = a$

$2a = a - 2b + 1 \rightarrow 2a = a - 2a + 1 \rightarrow 2a = -a + 1$

$3a = 1 \rightarrow a = \frac{1}{3}$

$$\int \frac{1}{x} - \frac{1}{y} = -1 \xrightarrow{x=5} \int \frac{-5}{x} + \frac{1}{y} = 5 \quad \text{ب-ا}$$

$$\left( \frac{5}{x} - \frac{1}{y} = -3 \right) \rightarrow \frac{1}{y} = 2 \rightarrow \boxed{y = -1}$$

$$i \neq y = -1 \rightarrow \frac{1}{x} + 1 = -1 \rightarrow \frac{1}{x} = -2 \rightarrow \boxed{x = -\frac{1}{2}} \rightarrow \frac{x}{y} = +\frac{1}{2}$$

$$f = \left\{ (-1, m^2 - 3m), (3, 5), (-1, -2), (m+1, 4), (2, 4), (m^2 + 2, 4m+1) \right\} \quad \text{ب-ا}$$

$$(-1, m^2 - 3m), (-1, -2) \rightarrow m^2 - 3m + 2 = 0 \rightarrow m = 2$$

$$\rightarrow m = 1$$

$$m = 1 \rightarrow (2, 4), (m+1, 4) \rightarrow (2, 4), (2, 4) \quad \times$$

$$m = 2 \rightarrow (3, 5), (m+1, 4) \rightarrow (3, 5), (3, 4) \quad \times \rightarrow \text{به ازای هم متناظر m جواب تفواهد داشت!}$$

$$x = \frac{y}{\sqrt{1-y^2}} \rightarrow \frac{y_1}{\sqrt{1-y_1^2}} = \frac{y_2}{\sqrt{1-y_2^2}} \rightarrow \frac{y_1^2}{1-y_1^2} = \frac{y_2^2}{1-y_2^2} \quad \text{ب-ا}$$

$$\rightarrow y_1^2 - y_1^2 y_2^2 = y_2^2 - y_1^2 y_2^2 \xrightarrow{\substack{y_1, y_2 \\ \text{هم علامت}}} y_1 = y_2 \rightarrow \text{رابطه تابهت}$$

$$y - 3x + a = 0 \xrightarrow{(-1, -2)} -2 + 3 + a = 0 \rightarrow \boxed{a = 1}$$

$$y = x^2 + ax + b \xrightarrow{(-1, -2)} -2 = -1 - 1 + b \rightarrow \boxed{b = -2}$$

$$3x - 1 = x^2 + x - 2 \rightarrow x^2 - 2x - 1 = 0 \xrightarrow{x = -1} (x+1)(x^2 - x - 1) = 0 \rightarrow \Delta > 0 \rightarrow S = -\frac{b}{a} = 1$$

ریشه عبارت

