

تکلیف شماره ۲۷

۱۸، ۱۵، ۵

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الف) $(9, x+2y), (2x-y, -2) \rightarrow 9 = 2x-y \rightarrow 18 = 4x-2y$
 $-2 = x+2y \rightarrow -4 = 2x+4y$
 $\frac{14 = 7x}{2 = x}$
 $-2 = 2+4y \rightarrow -4 = 4y \rightarrow y = -1$
 $\left. \begin{array}{l} \frac{x}{y} = \frac{2}{-1} = -2 \\ \frac{2}{-1} = -2 \end{array} \right\}$

ب) $(-1, -2), (\frac{1}{x} - \frac{1}{y}, \frac{5}{x} - \frac{4}{y}) \rightarrow -1 = \frac{1}{x} - \frac{1}{y} \rightarrow (-5 = \frac{5}{x} - \frac{4}{y}) \rightarrow -5 = \frac{5}{x} - \frac{4}{y}$
 $-2 = \frac{5}{x} - \frac{4}{y} \rightarrow -10 = \frac{5}{x} - \frac{4}{y}$
 $\frac{2 = -\frac{2}{y} \rightarrow y = -1}{\rightarrow \frac{x}{y} = \frac{-1}{-1} = 1}$

$a+1 = -2 \rightarrow a = -3$ $\{(-2, -4), (1, -2), (1, -2), (1, -2), (1, b)\}$

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$f(a) = f(-2) = 2x - 3 = -4$
 $f(1) = -2$
 $f(a) + 2f(2) = 3f(1) \rightarrow -4 + 2f(2) = 3(-2)$
 $2f(2) = 0$
 $f(2) = 0 \rightarrow b = 0$

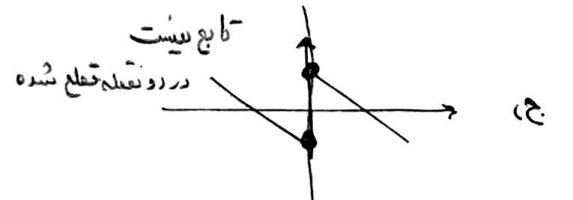
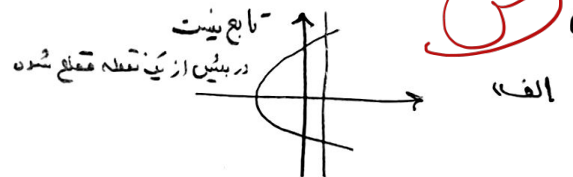
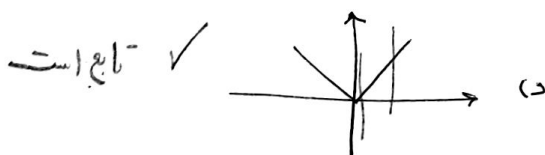
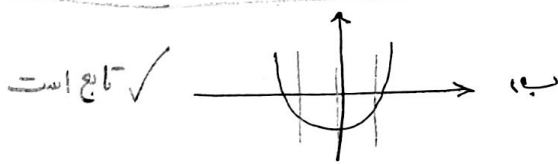
$m^2 - 3m = -2 \rightarrow m^2 - 3m + 2 = 0 \rightarrow (m-1)(m-2) = 0$
 $\begin{cases} m = 2 \\ m = 1 \end{cases}$

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$\underline{a} \ m = 2 \rightarrow m+1 = 2+1 = 3 \rightarrow (3, 4), (3, 5) \rightarrow$ تابع نیست

$\underline{b} \ m = 1 \rightarrow m+1 = 1+1 = 2 \rightarrow (2, 4), (2, 3) \rightarrow$ تابع نیست

پس به ازای هیچ مقداری



$y = \sqrt{x+1}$ الف)

$y_1 = -\sqrt{x+1}$
 $y_2 = \sqrt{x+1}$
 $\left. \begin{array}{l} y_1 = -\sqrt{x+1} \\ y_2 = \sqrt{x+1} \end{array} \right\}$ تابع است $y_1 = y_2$

حل قسمت ب در معادله جبری

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~~$x = \frac{y}{\sqrt{1-y^2}}$ $\xrightarrow{\text{میانگین}}$ $x=1 \rightarrow 1 = \frac{y}{\sqrt{1-y^2}} \rightarrow (\sqrt{1-y^2})^2 = (y)^2 \rightarrow 1-y^2 = y^2$
 $1 = y^4 \rightarrow y = \pm 1$ تابع نیست~~

تابع $y = \pm 1$ تابع $y = \pm 1$ \rightarrow $|y| = 1$ \rightarrow $|y| = x$ \rightarrow $|x| = 1$ \rightarrow $x = \pm 1$

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دو طرف به علامه

ب) $y^3 + 3y^2 + 3y + x^3 + x = 0$ $\xrightarrow{\text{تعریف رابنه}}$ $(y_1)^3 + 3(y_1)^2 + 3(y_1) = -x^3 - x$ $\left. \begin{aligned} & (y_2)^3 + 3(y_2)^2 + 3(y_2) = -x^3 - x \\ & (y_1)^3 + 3(y_1)^2 + 3(y_1) = -x^3 - x \end{aligned} \right\} \begin{aligned} & y_1^3 + 3y_1^2 + 3y_1 + 1 = y_2^3 + 3y_2^2 + 3y_2 + 1 \\ & (y_1 + 1)^3 = (y_2 + 1)^3 \end{aligned}$

$y_1 + 1 = y_2 + 1 \rightarrow y_1 = y_2$ \checkmark تابع است

$$\frac{(\sqrt{3}-2)^3 + 3(\sqrt{3}-2)^2 + 3(\sqrt{3}-2) + a}{(\sqrt{3}-2)^3 + 3(\sqrt{3}-2)^2 + 3(\sqrt{3}-2) + v} = \frac{3+3-4\sqrt{3}+4\sqrt{3}-1+a}{3+3-4\sqrt{3}+4\sqrt{3}-1+v} = \frac{-1+a}{-1+v} = \frac{3}{4} = \frac{2}{3}$$

1, 1, 1, 1

$y = 3x - a \rightarrow -4 = 3(-1) - a \rightarrow -4 = -3 - a \rightarrow a = 1$

$f(-1) = (-1)^3 - a + b = -4 \rightarrow -1 - (+1) + b = -4 \rightarrow b = -2$

$f(x) = x^3 + x - 2$ $x^3 + x - 2 = 3x - 1 \rightarrow x^3 - 2x + 1 = 0$

$y = 3x - 1$

$$\begin{array}{r} x^3 - 2x + 1 \quad | \quad x+1 \\ \underline{-x^3 + x^2 - 1} \\ x^2 - x - 1 \quad | \quad x+1 \\ \underline{-x^3 + x^2 - 1} \\ -x - 1 \end{array} \quad (x+1)(x^2 - x - 1)$$

$\frac{-b}{a} = 1$
 $\frac{-(-2)}{3} = \frac{2}{3}$

در تابع ثابت به ازای هر x خود می تابتی بدست می آید

$a + b = 2a$
 $b = a$

$2a = a - 2b + 1 \rightarrow 2a = a - 2(a) + 1 \rightarrow 2a = a - 2a + 1 \rightarrow 2a = -a + 1$
 $3a = 1 \rightarrow a = \frac{1}{3}$

$2a = 2a$

$f(x) = \frac{3x^2 - ax + c + 1}{bx + 2} = x \rightarrow 3x^2 - ax + c + 1 = bx^2 + 2x$
 $b = 3 \quad a = -3 \quad c = -1$
 $a + b + c = 3 - 3 - 1 = -1$

$x = \frac{y_1}{\sqrt{1-y_1^2}} \quad x = \frac{y_2}{\sqrt{1-y_2^2}}$ نسبت به اعداد

$\frac{y_1}{\sqrt{1-y_1^2}} = \frac{y_2}{\sqrt{1-y_2^2}} \rightarrow \frac{y_1^2}{1-y_1^2} = \frac{y_2^2}{1-y_2^2}$

معین مخرج \oplus است y_1 و y_2 جمع صورت اند

$y_1^2 - y_1^2 y_2^2 = y_2^2 - y_1^2 y_2^2 \rightarrow y_1^2 = y_2^2 \rightarrow |y_1| = |y_2|$
 $y_1 = y_2$