

الف) $y^2 - 2x^2 - 1$ $y^2 - 2x^2 - 1$

$(x_1, y_1), (x_2, y_2) \rightarrow y_1, y_2$

$y_1^2 - 2x_1^2 - 1$ $y_2^2 - 2x_2^2 - 1$

$y_1^2 - 2x_1^2 - 1$ $y_2^2 - 2x_2^2 - 1$

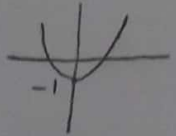
ب) $y^2 + y - 2x^2 - 1$ $y^2 + y - 2x^2 - 1$

$(x_1, y_1), (x_2, y_2) \rightarrow y_1, y_2$

$y_1^2 + y_1 - 2x_1^2 - 1$ $y_2^2 + y_2 - 2x_2^2 - 1$

$y_1^2 + y_1 - 2x_1^2 - 1$ $y_2^2 + y_2 - 2x_2^2 - 1$

الف) $x^2 - 1$ y



ب) $|y| + y + 2$ $|y| + y + 2$

$|y| + y + 2$

$|y| + y + 2$

$y + 2 - y$

$y + y - 2$

ج) $y^2 + 2x^2 - 1$

$y^2 + 1$ $y^2 + 1$

$y^2 + 1$

$y^2 + 1$

$y^2 + 1$

د) $\sqrt{y} + \sqrt{x} + 2$

$(x_1, y_1), (x_2, y_2) \rightarrow y_1, y_2$

$\sqrt{y_1} + \sqrt{x_1} + 2$ $\sqrt{y_2} + \sqrt{x_2} + 2$

$\sqrt{y_1} + \sqrt{x_1} + 2$ $\sqrt{y_2} + \sqrt{x_2} + 2$

$\sqrt{y_1} + \sqrt{x_1} + 2$ $\sqrt{y_2} + \sqrt{x_2} + 2$

الف) $\tan \frac{\pi}{3}$

$\frac{\sin}{\cos} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

ب) $\cot \frac{\sqrt{\pi}}{4}$

$\frac{\cos}{\sin} = \frac{+\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

ج) $\tan 135^\circ$

$\frac{\sin}{\cos} = \frac{-\frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}}} = -1$

د) $\cot 110^\circ$

$\frac{\cos}{\sin} = \frac{-1}{0}$

تعریف نشده

الف) $\sin \alpha = \frac{1}{2}$

$\alpha = 30^\circ, 150^\circ$

$\frac{\pi}{6}, \frac{5\pi}{6}$

ب) $\cos \alpha = \frac{\sqrt{2}}{2}$

$\alpha = 45^\circ, 315^\circ$

$\frac{\pi}{4}, \frac{7\pi}{4}$

$f(n) = \begin{cases} -2n+1 & n > 1 \\ n & -1 < n < 1 \\ n+1 & n < -1 \end{cases}$

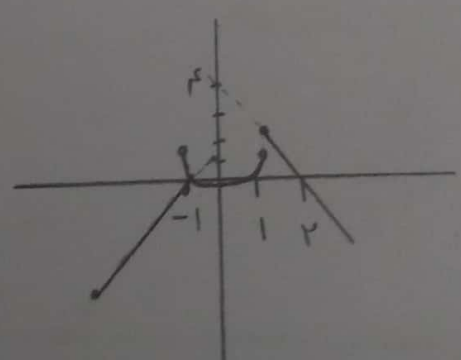
$y = -2x + 1$

$y = f \left[\begin{pmatrix} 2 \\ 1 \end{pmatrix} \right]$

$-f = -2x$ $2 \leq x$

$y = x + 1$

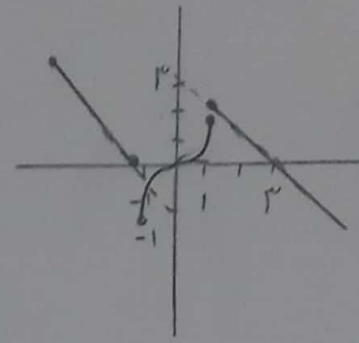
$y = 1 \left[\begin{pmatrix} 0 \\ 1 \end{pmatrix} \right] \left[\begin{pmatrix} -1 \\ 0 \end{pmatrix} \right]$



$$f(x) = \begin{cases} -2x+3 & x > 1 \\ x^2 & -1 \leq x \leq 1 \\ -x-1 & x < -1 \end{cases}$$

$$y = x^2 - x - 1 \quad \begin{cases} y = -1 \\ -1 = x \end{cases} \quad \begin{cases} y = -x+3 \\ -1 = -x+3 \\ x = 4 \end{cases}$$

$$y = x^2 \quad \begin{cases} y = 0 \\ 0 = x \end{cases}$$



الف) $(x-2)(x-3)(x-4)$

$x^2 \quad x^3 \quad x^4$

2	3	4
$-$	$+$	$-$
$+$	$-$	$+$

ب) $y = (x-2)(x-3)^2(x-4)$

$x^2 \quad x^3 \quad x^4 \quad x^5$

2	3^*	4
$+$	$-$	$-$
$-$	$+$	$+$

الف) $\frac{(x-2)(x-4)}{(x-3)^2}$

$x^2 \quad x^3$

2	3	4
$-$	$+$	$-$
$+$	$-$	$+$

ب) $\frac{(x-2)(x-4)}{(x-3)^2}$

$x^2 \quad (x-3)^2 \quad x^3$

2	3^*	4
$+$	$-$	$-$
$-$	$+$	$+$

الف) $y = \frac{x^3 - 3x^2 + 2}{x^3 - 3x^2 + 2x - 1}$

$x^3 \quad x^4 \quad x^5 \quad x^6$

$x^3 + x - 2$

$(x-1)(x+2)$

$x^2 \quad x^3 \quad x^4$

1	2	3
$+$	$+$	$-$
$-$	$+$	$+$

ب) $y = \frac{x^3 - 3x^2 + 2}{(x-1)(x-2)}$

$x^3 \quad x^4 \quad x^5 \quad x^6$

$(x-1)(x-2)$

$x^2 \quad x^3 \quad x^4$

1	2	3
$+$	$+$	$-$
$-$	$+$	$+$

الف) $\frac{x^3 - x^2}{x^2 + x + 2}$

$x^2 \quad x^3 \quad x^4$

$x^2 + x + 2$

$x^2 \quad x^3 \quad x^4$

2	3	4
$-$	$-$	$+$
$+$	$+$	$+$

ب) $y = \frac{x^2 + 2x + 1}{x^2 + 2x + 3}$

$x^2 \quad x^3 \quad x^4$

$x^2 + 2x + 3$

$x^2 \quad x^3 \quad x^4$

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