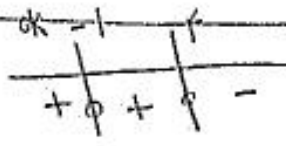


$$x^2 - ax + b = (x-1)(x-3)$$

$$x^2 - 4x + 3 \Rightarrow a = 4, b = 3$$

$$a + b = 7$$



$$\frac{m}{2} + k = ?$$

$$y = ((k-2)x + m - 1)(x - 3)$$

۱- دیشی این عبارت است چون معادله است

$$(x+1)^2 \Rightarrow -2n = 1 \Rightarrow n = -\frac{1}{2}$$

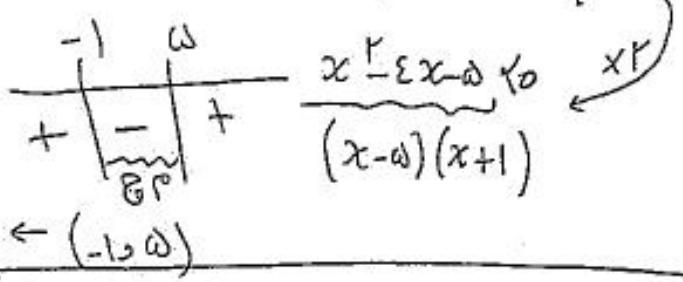
$$\frac{m}{2} + k = \frac{0}{-\frac{1}{2}} + 1 = -1$$

دو بار از علامت (-) است پس چون علامت برابر است
مربوط علامت a است پس \Rightarrow

چون علامت برابر است پس $\Rightarrow k = 1$
چون علامت برابر است پس $\Rightarrow m = 0$

$$\frac{-m+1}{k-2} = 1 \Rightarrow m = 0$$

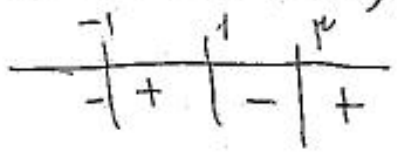
$$y = -\frac{1}{4}x^2 + 2x + 4 \rightarrow y > \frac{1}{4} \Rightarrow -\frac{1}{4}x^2 + 2x + 4 > \frac{1}{4} \rightarrow -\frac{1}{4}x^2 + 2x - \frac{3}{4} > 0$$



$$b - a = 4, a = -1, b = 3$$

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

$$f(x) > 0 \rightarrow (1, 3) \rightarrow \frac{3-1}{1} = 2$$

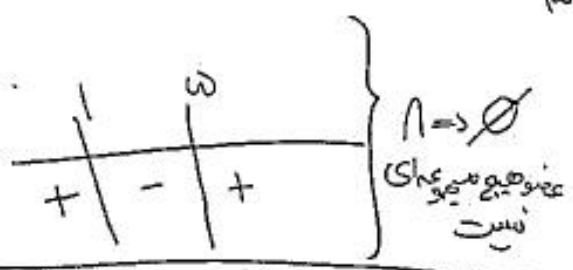


$$f(x) = 1 - 1 - 2 + 3 = -1$$

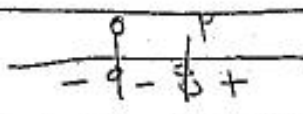
$$(a-1)x^2 + (a-1)x + 1 = y$$

$$a < 0 \Rightarrow a < 1$$

$$\Delta < 0 \Rightarrow (a-1)^2 - 4(a-1) < 0 \Rightarrow (a-1)(a-5) < 0$$

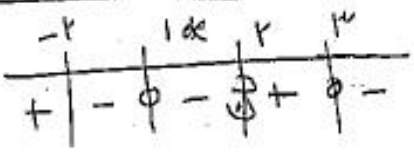


$$\frac{m(m^2+m)}{m-2} - \frac{m^2(m+1)}{m+2} \rightarrow \Delta < 0$$



$$EP: (2, +\infty)$$

$$\frac{(x-3)(x-2)}{(x+2)(x-1)^2} > 0$$



$$EP = [-2, 1) \cup [2, 3)$$

(8)

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

for $x > 0$ $\frac{3x^2 - 2x - 1}{x^2 + 1} < 0 \rightarrow x^2 - 2x - 1 < 0 \quad (x-1)(x+1) < 0$

$\Delta < 0$
 $x = \frac{2 \pm \sqrt{4 + 4}}{2} = 1 \pm 1$

+	-	+
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$\Rightarrow (-1, 1) = (a, b)$

(9)

$$\frac{3x^2 - 2x}{x+1} < 0 \quad \frac{x(x-1)}{x+1} < 0$$

-	+	-	+
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$b-a = 4 \quad a = -1 \quad b = 1$

$\frac{3x^2 - 2x + x + 1}{x+1} > 0 \rightarrow \frac{3x^2 - x + 1}{x+1} > 0$

-	+
---	---

$\Rightarrow (0, \frac{1}{3})$

(10)

$$\frac{x^2 - 10}{x} < 0 \Rightarrow \frac{x^2 - 10x - 10}{x} < 0 \rightarrow \frac{(x-10)(x+1)}{x} < 0$$

-	+	-	+
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$\Rightarrow (-\infty, -1] \cup (0, 10]$