(۱)

$+ \; | \; 1 \; - \; | \; 3 \; +$

:)

① → $1 - a + b = 0$ → $-3 + 2a - 3b = 0$

③ → $9 - 3a + b$ → $9 - 3a + b = 0$

$9 - 2b = 0$ $\boxed{b = 3}$ ⇒ $\boxed{a = 4}$

$\boxed{3 + 4 = 7}$ ۲

آذر ۱۹٫۵

② $((k-2) - 1 + m - 1)(-1 - 3n)^2 = 0$ $-1 - 3n = 0$ $-k + 1 + m = 0$

$n = -1/3$

④ → $(4k - 8 + m - 1)(4 - 3n)^2 = 0$ $4k + m - 9 = 0$

$3n = -1$ $n = -1/3$ $m = 9 - 4k$

$y = ((k-2)x + (9 - 4k) - 1)(x + 1/3)^2 \rightarrow y = ((k-2)x + 8 - 4k)(x + 1/3)^2$

$((k-2) \times 0 + 8 - 4k = 8 - 4k > 0 \rightarrow k > 2 \rightarrow \boxed{k = 1} \in W$ ۲

$k = 1$ $m = 9 - 4 = 5$ $n = -1/3$ $\frac{m}{n} + k = -15 + 1 = \boxed{-14}$

③

$\frac{-1}{3} x^2 + 2x + 4 > 7/3$

$-x^2 + 6x + 12 > 7$

$x^2 - 4x - 5 < 0$ $(x - 5)(x + 1)$ $+ \; | \; -1 \; - \; | \; 5 \; +$ ۲

$x = 5, \; x = -1$

$(-1, 5)$ $b - a = 5 + 1 = ⑥$

④

$x(x^2 - x - 1) + 3$

امتحان می‌کنیم → ① → $1 - 2 - 1 + 3 = 0$ $f(2) = 8 - 12 - 4 - 3 = -3 < 0$

③ $27 - 27 - 3 + 3 = 0$ $(a, b) = (1, 3)$ $\frac{1+3}{2} = 2$ $f(2) = -3$

(-1) $-1 - 3 + 1 + 3 = 0$

$f\left(\frac{a+b}{2}\right) = -3$ ۲

⑤ $a - 1 < 0$ $a < 1$

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

$a < 1$ $1 < a < 5$

$1 < a < 5$ → $\boxed{\varnothing}$ ۲

⑥ $\frac{m^4 + m^2}{m - 2}$ $m^2(m^2 + 1)$ $\boxed{m > 2}$ ۲

$m^2 > 0$ $m^2 > -1$

ت ن → $m = 2$

→ $m < 2$ + → $m > 2$

سارا لبنانی

۱۵

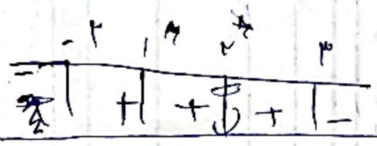
به توان ۲ یعنی مضاعف!

(۷)

$$\frac{(x^2-x-6)(x-1)^2}{(x^2+x+1)(2-x)^3} \geq 0 \qquad \frac{(x-3)(x+2)(\quad)}{(x^2+x+1)(2-x)^3}$$

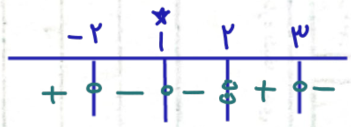
$(2-x)^3$: $+ \; x<2$, $- \; x>2$

$\Delta = -3 < 0$



$(-\infty, -2] \cup [3, +\infty)$

جواب $= [-2, 2) \cup [3, +\infty)$



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(۸) $f(x) = \dfrac{3x^2-2x}{x^2+4} \qquad y=2$

$$\frac{3x^2-2x}{x^2+4} < 2 \qquad 3x^2 - 2x < 2(x^2+4) \to 3x^2$$

$$-2x < 2x^2 + 8 \to x^2 - 2x - 8 < 0 \qquad (x-4)(x+2) < 0$$

$(-2, 4) \to 4+2=6 \qquad -2 < x < 4$

ج

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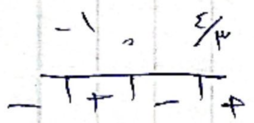
(۹)

$$-1 < \frac{3x^2-4x}{x+1} \leq 0 \qquad \frac{x(3x-4)}{(x+1)} \qquad x=0 \quad x=\tfrac{4}{3}$$

$$\frac{3x^2-4x}{x+1} \leq 0 \qquad (-\infty, -1) \cup (0, \tfrac{4}{3})$$



$$\frac{3x^2-4x}{x+1} > -1 \to \frac{3x^2-4x-4x+x+1}{x+1} > 0$$

$x+1>0 \qquad x>-1 \to (-1, +\infty) \qquad \Delta = 9-12 = -3$

$\Delta < 0$

$(0, \tfrac{4}{3})$

ب

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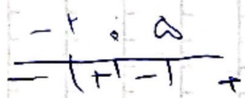
(۱۰) $\dfrac{x^2-10}{x} \geq 3 \qquad \dfrac{x^2-10-3x}{x} \geq 0 \qquad \dfrac{x^2-3x-10}{x} \geq 0 \qquad \dfrac{(x-5)(x+2)}{x} \geq 0$

$x_1 = 5 \qquad x_2 = -2$



$x \leq -2$

$0 < x \leq 5 \to (5-2)$

$[-\infty, -2] \cup (0, 5]$