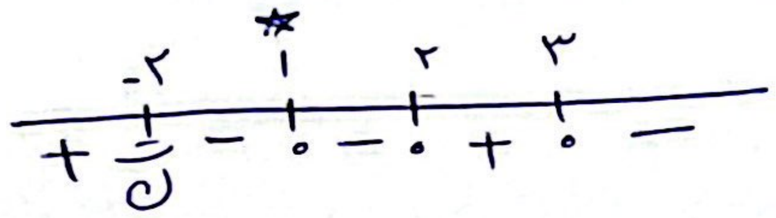
$$\frac{(x-4)(x+2)(x-1)^2}{\cancel{(x^2+x+1)}(2-x)^2} \leq 0$$

+ عبارت



$$D = [-2, 2) \cup [3, +\infty)$$

-۷ ②

-۸ ②

$a = (x, 2)$
$b = (y, 2)$

$$2 = \frac{3x^2 - 2x}{x^2 + 4} \longrightarrow 2x^2 + 8 = 3x^2 - 2x$$

$$x^2 - 2x - 8 = 0$$

$$(x-4)(x+2) = 0$$

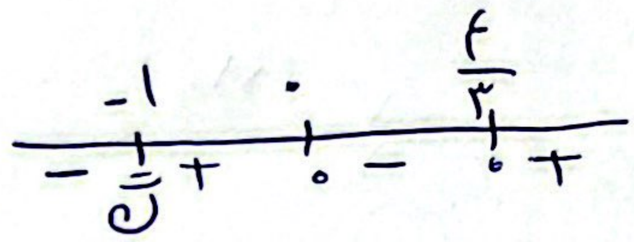
$$a, b = 4, -2$$

$$\text{Max } b - a = 4 - (-2) = \boxed{6}$$

-۹ ②

$$1 - \frac{3x^2 - 4x}{x+1} < 0 \qquad 3x^2 - 4x = 0$$

$$x(3x - 4) = 0 \qquad x = 0, \frac{4}{3}$$

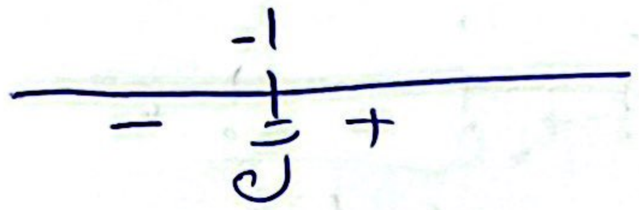


$$1 - (-\infty, -1) \cup (0, \frac{4}{3})$$

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

$$x + 1$$

$$\Delta = 9 - 12 = -3 \quad \text{ق ن ح}$$

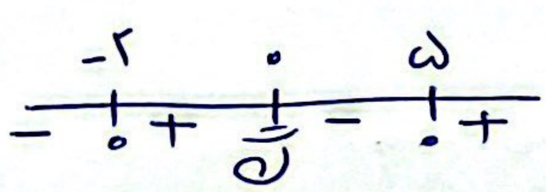


$$2 - (-1, +\infty)$$

$$1 \cap 2 = (0, \frac{4}{3})$$

-۱۰ ②

$$\frac{(x-5)(x+2)}{x} \leq 0$$



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

-۲ ②

$$(-1 - 3n)^2 = 0$$

$$n = -\frac{1}{3}$$

$$k - 2 < 0$$

$$k < 2 \longrightarrow k = 1 \text{ یا } 0$$

$$k = 1, n = 4 \longrightarrow (k-2)^4 + m - 1 = 0 \longrightarrow \cancel{4^4} + m = 9$$

$$m = 5$$

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

پایان مرحله

۲۰

۱- ۳

$$\begin{cases} 1-a+b=0 \\ 9-2a+b=0 \end{cases} \quad \begin{matrix} a-b=1 \\ 2a-b=9 \end{matrix} \quad \begin{matrix} 2a=8 \\ a=4 \end{matrix} \quad \begin{matrix} 4-1=b \\ b=3 \end{matrix}$$

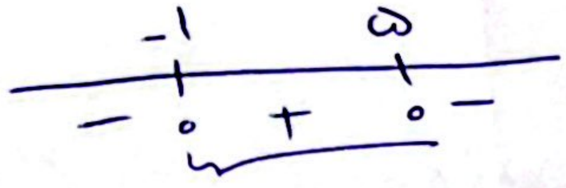
$$a+b=4+3=7$$

۲- ۳

$$-\frac{1}{2}x^2+2x+4>\frac{7}{2} \xrightarrow{\times 2} -x^2+4x+8>7$$

$$x^2-4x-5<0$$

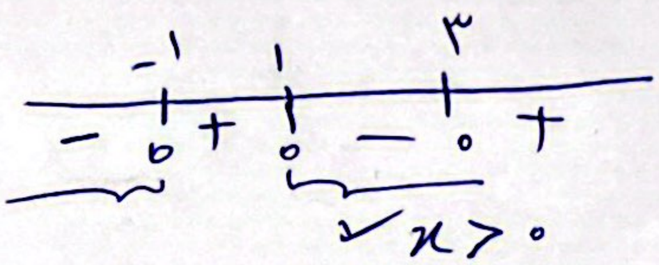
$$(x+5)(x-1)>0$$



$$b-a=5-(-1)=6$$

۳- ۳

$$(x-1)(x-3)(x+1)<0$$



$x>0$

$$x^3-2x^2-x+2 \;\big|\; x-1$$
$$x^3-x^2 \qquad\quad x^2-x-2$$
$$-x^2-x$$
$$-x^2+x$$
$$-2x+2$$

مجموع ضرایب = ۰

$$f(x)=x^3-2x^2-x+2$$
$$f(2)=8-8-2+2=0$$

۴- ۳

$$f(1)=1-2-1+2=0$$

۵- ۳

۱) $a-1<0$

$a<1$

۲) $\Delta<0$

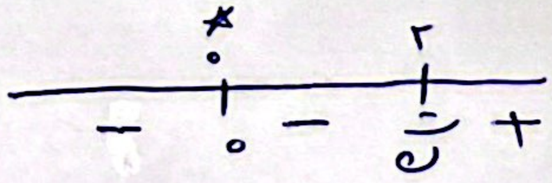
$$a^2+1-2a-4a+4<0$$
$$a^2-6a+5<0$$
$$(a-1)(a-5)<0$$

$$1 \cap 2=\emptyset \rightarrow$$ مجموعه‌ای که a قرار دارد

۶- ۳

صورت + جز ۰

$$\frac{m^4+m^2}{m-2}>0$$



$m=2,0$

جواب $\rightarrow (2,+\infty)$