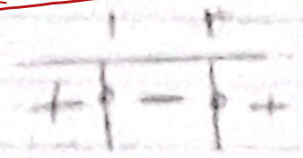


19, 20

CR

$y = x^2 - ax + b$



5

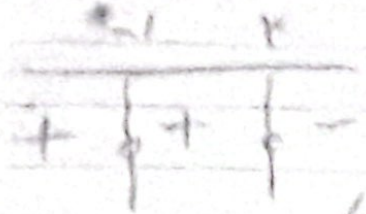
$(x-1)(x-1) = x^2 - \epsilon x + 1 \rightarrow a+b=V$

-10

$\frac{1}{x} \rightarrow \oplus x^2 \rightarrow \left. \begin{matrix} K-1 < 0 \\ K < 1 \end{matrix} \right\} \rightarrow K > 1$

$((K-1)x + m-1)(x-1) =$

5



$-1 = -1 \quad -1 - 1 \cdot 1 = 0 \quad \frac{1}{1} + 1 = -1 \epsilon$

$(K-1)K + m-1 = 0 \rightarrow \epsilon K - 1 + m - 1 = 0$

$\frac{9-m}{\epsilon} \rightarrow \sqrt{\frac{m-9}{K-1}}$

$\epsilon K = 9 - m \rightarrow K = \frac{9-m}{\epsilon}$

$y = \frac{1}{x} x^2 + 1x + 9 \quad \Delta = 1 + 1 = 2$



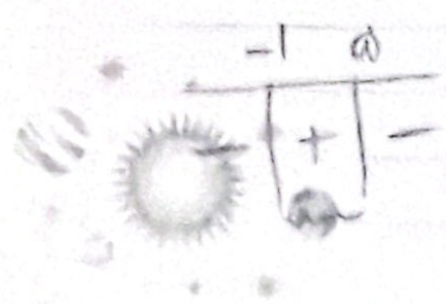
$x_{1,2} = \frac{-1 \pm \sqrt{2}}{-1} \rightarrow -1, 1$

$\frac{1}{x} x^2 + 1x + 9 > \frac{1}{x}$

$\frac{1}{x} x^2 + 1x + 9 - \frac{1}{x} > 0$

$\Delta = \epsilon + 1 = 2$

$\frac{-1 \pm \sqrt{2}}{-1} = -1, \sqrt{2}$



$(-1, \sqrt{2}) = (a, b)$

5

$b - a = 9$

3 (E)

$$f(x) = x^r - \mu x^r - x + \mu$$

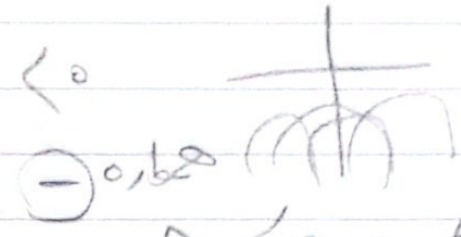
$$x^r - \mu x^r - x + \mu < 0 \rightarrow x(x^r - 1) - \mu(x^r - 1) = (x - \mu)(x^r - 1) < 0$$

$$f(x) = 1 - 1^r - 1 + 1^r = -1$$

$x = \frac{\mu}{x}$ (1, μ)
 $r = 0, 1, 2, \dots$

$$(a-1)x^r + (a-1)x + 1 < 0$$

* * $\rightarrow \emptyset$

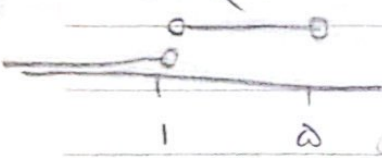


3 (A)

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

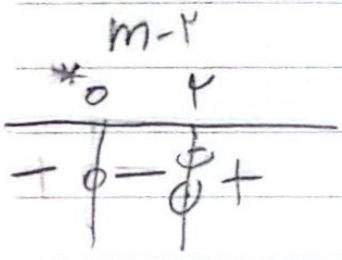
$$a-1 < 0$$

$$a < 1 \rightarrow a^r + 1 - 2a - 4a + 4 < 0$$



$$a^r - 4a + 4 < 0 \rightarrow (a-1)(a-4) < 0$$

$$\frac{m(m^r + m)}{m-r} > 0 \rightarrow \frac{m^r(m^r + 1)}{m-r} > 0$$



$$m > r$$

3 (F)

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

$$(x^2 - x - 9)(x+1)^2$$

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

	-2	1	2	2
	+	-	-	+
				-

$$[-2, 2) \cup [2, +\infty)$$

$$f(x) = \frac{x^2 - x - 9}{x^2 + 2}$$

$$(a, b) \rightarrow \frac{x^2 - x - 9}{x^2 + 2}$$

$$\frac{x^2 - x - 9}{x^2 + 2} < 2 \rightarrow \frac{x^2 - x - 9 - 2x^2 - 4}{x^2 + 2} < 0$$

$$\frac{-x^2 - x - 13}{x^2 + 2} < 0$$

	-2	2
	+	-
		+

$$(-2, 2) = (a, b)$$

$$b - a = 4$$

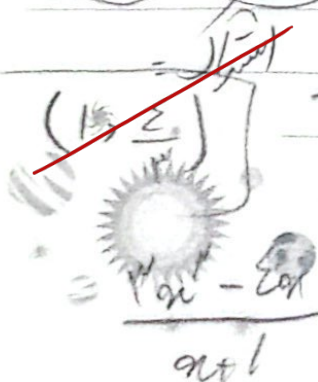
$$-1 < \frac{x^2 - 2x}{x+1} < 0$$

$$1, 2 \omega(9)$$

$$\Delta = 9 - 4 = 5$$

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

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



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

$$(2, 3) \cup (0, \frac{2}{3})$$

$$\frac{a^2 - 1}{a} \leq 0 \quad \rightarrow \quad \frac{a^2 - 2a - 1}{a} \leq 0 \quad \textcircled{P} \quad (1)$$

$$\frac{(a-1)(a+1)}{a} \leq 0$$

$$\frac{a}{0}$$

$$\frac{-1 \quad 0 \quad 1}{- \quad + \quad - \quad +}$$

$$(-\infty, -1] \cup (0, 1]$$