

$y = x^2 - ax + b$

+	-	+	-	+	-

$x_2 \rightarrow y_2 = 0 \Rightarrow 1 - a + b = 0 \quad a - b = 1$   
 $9 - 2a + b = 0 \quad 1 - 2a = 0 \quad 2a = 1 \quad a = \frac{1}{2} \quad b = \frac{1}{2}$   
 $a + b = \frac{1}{2} + \frac{1}{2} = 1$

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

+	+	+	-	-	-

$-1 - 2n = 0 \quad 2n = -1 \quad n = -\frac{1}{2}$   
 $k - 1 + m - 1 = 0 \quad k + m = 2$   
 $k = 1 \rightarrow m = 1 \checkmark$   
 $k = 2 \rightarrow m = 0 \times$

$x = 0 \rightarrow (m-1)(-2n)^2 = \frac{(m-1)9n^2}{4} > 0$

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

$\frac{1}{x} x^2 + 2x + 4 > \frac{1}{x}$

$\frac{1}{x} x^2 - 2x - \frac{4}{x} < 0$

+	-	-	+	+	-

$x = -1$   
 $x = 4$

$b - a = 4 + 1 = 5$

$f(x) = x^3 - 3x^2 - 2x + 3 \quad x > 0$

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

-	+	-	+	+	-

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

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

$\Delta < 0 \quad (a-1)^2 - 4(a-1) = a^2 + 1 - 2a - 4a + 4 = a^2 - 4a + 5 < 0$

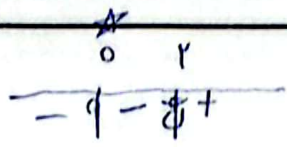
$a < 0 \rightarrow a < 1$

+	-	-	+	+	-

$a \in \emptyset$

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

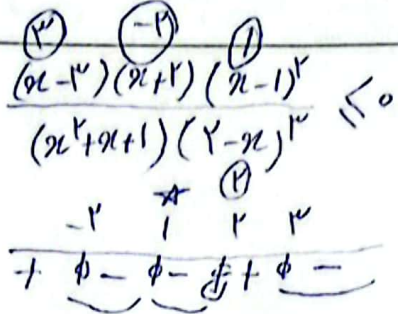
$$Z.I = (r, \infty)$$



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

$$Z.I = [-r, r] \cup [r, \infty)$$



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$$\frac{r^2 x^r - r x}{x^r + r} < r$$

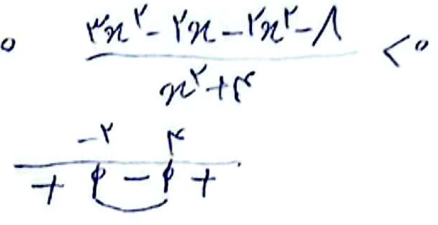
$$\frac{x^r - r x - 1}{x^r + r} < 0$$

$$Z.I = (-r, r)$$

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

$$\frac{(x-r)(x+r)}{x^r + r} < 0$$

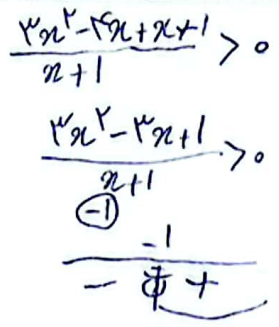
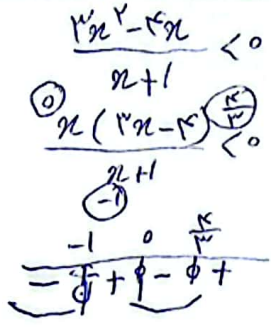
$$b-a = r+r = 4$$



8

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

$$Z.I = (0, \frac{r}{r})$$

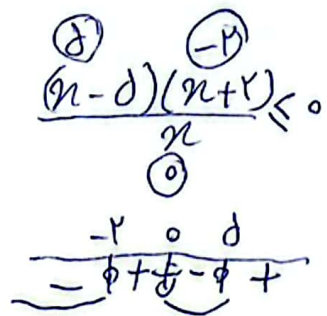


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$$\frac{x^r - 10}{x} \leq r$$

$$\frac{x^r - 10}{x} - r \leq 0$$

$$\frac{x^r - 10 - r x}{x} \leq 0$$



$$Z.I = (-\infty, -r] \cup (0, d]$$

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