

نام و نام خانوادگی: ... کلاس: ... شماره: ...

$y = x^2 - ax + b \rightarrow x^2 - (1+3)x + (2 \cdot 1) \rightarrow b = 2 \quad a = 4$   
 $a \cdot b = 2$   
 زیاده‌های سری  
 $\begin{array}{c} 1 \quad 3 \\ + \quad + \\ \hline 1 \quad 3 \end{array}$

$(k-2)x + m - 1)(x-3n)^2 \rightarrow k-2 < 0$   
 $k-2 < 0 \rightarrow k < 2 \rightarrow k=1$   
 $k-n+m-1=0 \rightarrow m=0$   
 $-n = \frac{1}{3} \rightarrow n = -\frac{1}{3}$   
 $\begin{array}{c} - \quad + \\ + \quad + \\ \hline - \quad + \end{array}$   
 $\frac{m}{n} + k = \frac{0}{-1/3} + 1 = -1 \cdot 3 + 1 = -2$

$-\frac{1}{2}x^2 + 2x + 6 > \frac{1}{2} \rightarrow -x^2 + 4x + 11 > 0$   
 $\begin{cases} x = -1 \\ x = 7 \end{cases}$   
 $\begin{array}{c} - \quad + \\ - \quad + \\ \hline - \quad + \end{array} \rightarrow (a, b)$   
 $a = -1$   
 $b = 7$   
 $7+1 = 8$

$f(x) = (x-1)(x+1)(x-2) \rightarrow x^3 - 2x^2 - x + 2$   
 $f(x) = x^3 - 2x^2 - x + 2$   
 $\begin{array}{r} x^3 - 2x^2 - x + 2 \\ + x^3 - x^2 + x - 2 \\ \hline -3x^2 - 2x + 4 \\ + 3x^2 - 6x + 6 \\ \hline -8x + 10 \\ + 8x - 16 \\ \hline -6 \end{array}$   
 $(x+1)(x-2)$   
 $x = -1$

$a-1 < 0 \rightarrow a < 1$   
 $\Delta < 0 \rightarrow a^2 - 2a + 1 - 2a + 1 = a^2 - 4a + 2 < 0$   
 $(a-1)(a-2) = 0 \rightarrow a = 1$   
 $\begin{array}{c} 1 \quad 2 \\ + \quad - \\ \hline 1 \quad 2 \end{array}$

$$\frac{m^r(m^r+1)}{m-r} \rightarrow \frac{-\infty \frac{r}{m} \frac{r}{m} + \infty}{-\frac{r}{m} - \frac{r}{m} + \frac{r}{m}} \quad m > r \rightarrow (r, +\infty)$$

(Y)

6

$$\frac{(x^r-x-9)(x-1)^r}{(x^r+x+1)(x-x)}$$

$x \rightarrow -r$   $x=1^*$

$-r \quad | \quad r \quad r$

$+ \quad - \quad - \quad + \quad -$

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

(Y)

7

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

$$\frac{-r \quad r}{+ \quad - \quad +}$$

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

$a = -r \rightarrow r+r = 2r$  ✓

(Y)

8

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

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

$$\frac{-1 \quad 0 \quad +\frac{r}{r}}{- \quad + \quad - \quad +} \rightarrow (-\infty, -1) \cup (0, \frac{r}{r})$$

$r \rightarrow (0, \frac{r}{r})$

(Y)

9

$$\frac{x^r-10}{x} \leq r \rightarrow \frac{x^r-x-10}{x} \leq 0 \rightarrow \frac{-\infty -r \quad 0 \quad \infty +\infty}{-\frac{r}{x} + \frac{r}{x} - \frac{r}{x} + \frac{r}{x}}$$

$(-\infty, -r] \cup (0, \infty)$

(Y)

1