

۱. ان کا قصہ

(1)

(۲)

2

(A)

$$\Rightarrow y = u^r + \frac{1}{u^{r+k}} + k - k \Rightarrow \underbrace{u^r + k + \frac{1}{u^{r+k}} - k}_{\text{def. of } R_y} \rightarrow k + \frac{1}{k} = \frac{10}{k} \quad \left[\frac{10}{k}, +\infty \right) \rightarrow R_y = \left[\frac{1}{k}, +\infty \right)$$

$$y = \frac{ru^r + r}{u^r - 1} \xrightarrow{\text{محدود کردن}} u^r = -\frac{y-r}{y+r} = \frac{y+r}{y-r} \rightarrow u = \pm \sqrt{\frac{y+r}{y-r}} \quad \left\{ \begin{array}{l} -r < r \\ +r < -r \end{array} \right\} R_y = (-\infty, -r] \cup (r, +\infty)$$

$$\lim_{u \rightarrow +\infty} \frac{ru^r + r}{u^r - 1} = \frac{ru}{ru} = r \quad \left\{ \begin{array}{l} \text{محدود کردن} \\ \text{محدود کردن} \end{array} \right\} (-\infty, -r] \cup (r, +\infty)$$

به این روش می توان از حدی استفاده کرد.

$$f(u) = \frac{r \sin u + r}{\sin u - r} \quad \sin u \begin{cases} \text{محدود کردن} \\ \text{محدود کردن} \end{cases} \begin{cases} 1 \rightarrow \frac{r+r}{1-r} = \frac{4}{1-r} = \frac{4}{r} - r \\ -1 \rightarrow \frac{-r+r}{-1-r} = -\frac{r}{1+r} = -\frac{1}{r} \end{cases} \left\{ \begin{array}{l} \text{محدود کردن} \\ \text{محدود کردن} \end{array} \right\} [-r, \frac{4}{r}] \quad (v)$$

$$(a) y = \left| \frac{ru-1}{ru} \right|$$

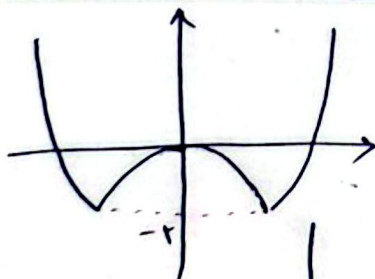
$$R_y = [0, +\infty)$$

$$(b) y = \sqrt{\frac{9u-18}{-1+ru}} = \sqrt{\frac{9(u-r)}{r(u-r)}} = \frac{3}{r} \quad R_y = \left\{ \frac{3}{r} \right\}$$

$$y = \frac{u|u|-ru}{-u^2-ru|u|-ru}$$



$$R_y = \mathbb{R}$$



$$f(u)$$

