

(۱)

$$\frac{\partial}{\partial x} \rightarrow \frac{\partial u}{\partial x} \rightarrow \frac{\partial u + y}{\partial u} \cdot \frac{\sqrt{5}+1}{2} \rightarrow \frac{1 \cdot u + y}{2} = \frac{u + y}{2}$$

$$\frac{y'}{y} = \frac{(\partial u + y)(f'u)}{(\partial u)(f'u)} \rightarrow \frac{\partial u + y}{\partial u} \rightarrow 1 + \frac{y}{\partial u} \rightarrow \frac{2\sqrt{5}+2}{2}$$

$$\frac{\partial u + y}{\partial u} = 2\sqrt{5} + 2 \rightarrow \frac{y}{u} = 2\sqrt{5} - 2 \rightarrow y = u(2\sqrt{5} - 2)$$

لازم نیست

(۲)

$$\frac{r}{u} = \frac{1+\sqrt{5}}{2} \rightarrow y' + u' = r' \rightarrow \frac{u'(1+\sqrt{5})}{2} \rightarrow y' = \frac{u'(1+\sqrt{5})}{2} - 1 = \frac{u'(1+\sqrt{5})}{2}$$

$$\rightarrow \left(\frac{u}{2}\right)' = \frac{1}{1+\sqrt{5}} \rightarrow \boxed{\frac{\sqrt{5}-1}{2}}$$

(۳)

$$2a-2 = -\sqrt{4a^2+4a} \xrightarrow{\text{باز کردن}} 4a^2 - 4a + 4 = 4a^2 + 4a \rightarrow 4a^2 - 4a + 4 = 4a^2 + 4a$$

$$4a^2 - 4a + 4 = 4a^2 + 4a \rightarrow 4a^2 - 4a + 4 = 4a^2 + 4a$$

$$\frac{a+1}{a} \xrightarrow{a=\frac{1}{2}} \boxed{\frac{3}{2}}$$

(۴)

$$\sqrt{u+1} = t \quad \sqrt{u-1} = b \quad \frac{t}{b+1} - \frac{t}{1-b} = b \rightarrow \frac{-2+b}{1-b^2} = z \rightarrow 2t = -9 + z^2$$

$$\xrightarrow{\text{جایگزینی}} 2(\sqrt{u+1}) = (\sqrt{u-1})^2 - 9 \rightarrow 2\sqrt{u+1} = u-1-9 = u-10 \xrightarrow{\text{باز کردن}} 4u+4 = u^2+10u-20u$$

$$\rightarrow u^2 - 24u + 24 = 0 \rightarrow \Delta = 144 \rightarrow \begin{cases} 12 + 2\sqrt{3} > 10 \\ 12 - 2\sqrt{3} < 10 \end{cases} \rightarrow \boxed{\text{پس جواب مثبت}}$$

(۵)

$$\frac{y' - \sqrt{2-u} - \sqrt{2-u}}{2-2+u} = \frac{2-u}{2\sqrt{2-u}} \rightarrow \frac{2\sqrt{2-u}}{2+u} = \frac{2-u}{2\sqrt{2-u}} \rightarrow 4-u^2 = -1 \cdot (2-u) = -2+u$$

$$4-u^2 = -2+u \rightarrow u^2 + u - 6 = 0 \rightarrow \begin{cases} 2 & \text{خارج می شود} \\ -3 & \text{منفی} \end{cases}$$

صفر نیست

$$\frac{1}{u^r} + \frac{1}{(1-u)^r} \xrightarrow{\text{مخرج مشترك}} \frac{(1-u)^r + u^r}{u^r(1-u)^r} \rightarrow \frac{1-u^r + u^r + u^r}{(u(1-u))^r} \rightarrow \frac{r(u^r - u) + 1}{(u - u^r)^r} = \frac{17}{9}$$

$$\frac{17}{9} = \frac{r(u^r - u) + 1}{(u - u^r)^r} \rightarrow 17(u - u^r)^r = 9(r(u^r - u) + 1)$$

$$17 \cdot t^r = 18t + 9 \rightarrow 17t^r - 18t - 9 = 0 \quad \begin{cases} \frac{r}{17} = u^r - u \rightarrow u^r - u - \frac{r}{17} = 0 \rightarrow g_1 \\ -\frac{r}{14} = u^r - u \rightarrow u^r - u + \frac{r}{14} = 0 \rightarrow g_2 \end{cases}$$

$$g_T = 1 + \sqrt{2}$$

$$\frac{1 \pm \sqrt{\Delta}}{2} \quad \frac{1 + \sqrt{\Delta}}{2} + \frac{1 - \sqrt{\Delta}}{2} = 1$$

(V) فقط قيم ثلاث

$$z = \sqrt{y} \rightarrow z \geq 0 \rightarrow u + 2z \rightarrow u \geq -2 \quad (I)$$

$$-u^r + 2u - 1 \geq 0 \quad \frac{r}{2} \quad \frac{r}{2} \quad (II) \quad u \geq 0 \quad (III) \quad u^r \geq 0 \quad (IV)$$

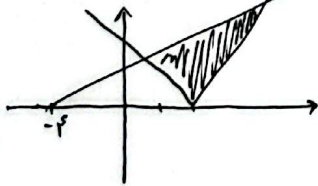
$$-u^r + 2u^r + 2u - 1 \geq 0 \quad \frac{-2}{+2} \quad \frac{r}{-2} \quad \frac{r}{+2} \quad (IV) \Rightarrow I \cap II \cap III \cap IV \cap V = \{r\}$$

(A)

$$\begin{cases} g = |u+2| + |u-1| \xrightarrow{\text{جست مثبت}} 2u+1 \\ g = -\frac{2u}{r} + \frac{14}{r} \end{cases} \rightarrow 2u+1 = -\frac{2u}{r} + \frac{14}{r} \xrightarrow{\times r} 2ur + r = -2u + 14 \rightarrow u \leq 2, y=0$$

$$\begin{cases} g = |u+2| + |u+1| \xrightarrow{\text{جست منفي}} -2u-1 \\ g = -\frac{2u}{r} + \frac{14}{r} \end{cases} \rightarrow -2u-1 = -\frac{2u}{r} + \frac{14}{r} \rightarrow \left| \frac{r}{2} \right| \quad \overline{AB} = \sqrt{r^2 + r^2} = \sqrt{2}r$$

$$y = \frac{1}{r}u + 2 \quad \sqrt{u^r - ru + r} \rightarrow |u-2| \quad u-2 = \frac{1}{r}u + 2 \rightarrow \frac{1}{4}$$



$$\rightarrow \frac{1}{r} \begin{vmatrix} 1 & 0 & 2 \\ 2 & 2 & 0 \\ 1 & 1 & 1 \end{vmatrix} \rightarrow \frac{17 + 0 + 12 - 2 - 0 - 0}{r} = \frac{27}{r} \rightarrow \frac{27}{r} = 1 \rightarrow r = 27$$

(9)

(1)

$$\frac{1}{u} + \frac{1}{u+9} = \frac{1}{r} \rightarrow \sqrt{u=27}$$

$$\frac{27}{r} \rightarrow \frac{27}{27} = 1 \rightarrow u+9 \leftarrow \text{مقدار} \quad u \leftarrow \text{مقدار}$$