

9) شرط کافی

$$\sqrt[3]{y} + x^2 = 2x - 1 \quad \sqrt[3]{y_1} + x_1^2 = 2x_1 - 1 \quad \sqrt[3]{y_2} + x_2^2 = 2x_2 - 1 \xrightarrow{x_1 = x_2} \sqrt[3]{y_1} = \sqrt[3]{y_2} \xrightarrow{\text{تابع}} y_1 = y_2 \quad \text{تابع است}$$

ب) $y''' + 2y = 0$

$$y_1''' + 2y_1 = 0 \quad y_2''' + 2y_2 = 0 \xrightarrow{x_1 = x_2} y_1''' - y_2''' + 2y_1 - 2y_2 = 0 \quad (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 2(y_1 - y_2)) = 0$$

$$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 2y_1 - 2y_2) = 0 \rightarrow \boxed{y_1 = y_2} \checkmark$$

$$\Delta = y_1^2 - 2y_1 y_2 + y_2^2 = (y_1 - y_2)^2 \geq 0 \quad \Delta < 0 \quad \text{ریشه ندارد}$$

پس $y_1 = y_2$ تابع است

مثال 1 $x \sin y = y \sin x$

تابع نیست

10) $x_1 \sin y_1 = y_1 \sin x_1 \quad x_2 \sin y_2 = y_2 \sin x_2 \xrightarrow{x_1 = x_2} x_1 \sin y_1 - y_1 \sin x_1 = x_2 \sin y_2 - y_2 \sin x_2$

$$\sin y_1 - y_1 \sin x_1 = \sin y_2 - y_2 \sin x_2$$

$$\sin y_1 - \sin y_2 - y_1 \sin x_1 + y_2 \sin x_2 = 0$$

$$\sin(y_1 - y_2) + \sin(y_2 - y_1) = 0$$

مثال 2 $x = 1 \quad \sin y = y \sin x \quad y = 0 \quad \sin 0 = 0 \quad y = 1 \quad \sin 1 = 1$

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$

$$z + \frac{1}{z} = 2 \quad z^2 + 1 = 2z \quad z^2 - 2z + 1 = 0 \quad (z-1)(z-1) = 0 \quad z = 1 \quad \sqrt{\frac{2}{y}} = 1 \quad \frac{2}{y} = 1 \quad x = y$$

تابع است

پس دوم یاردهم (سنتیک)

2) $x^V - \sum u - v = 0 \quad x^V - \sum u - (v < 0$

$(x + v)(u - v)$

$x_1 = -\frac{v}{\sum} = -\frac{1}{v}$

$x^V = \frac{v}{\sum} = \frac{v}{v}$

$x_1 = -\frac{v}{v} \quad x^V = \frac{v}{v} = \sum$

$$\rightarrow) \quad \gamma_{xx} \psi + \omega x + \psi = 0 \quad \Delta = b^2 - \varepsilon a c$$

$$\gamma_{xx} - \varepsilon x \gamma_{xx} \psi = 1$$

$$\frac{-b \pm \sqrt{\Delta}}{\gamma_{xx}} = \frac{-\omega \pm 1}{\gamma_{xx}} = \rightarrow x_1 = -1$$

$$\rightarrow x_2 = -\frac{q}{\varepsilon} = -\frac{q}{F}$$

$$\Delta = b^2 - 4ac = 9 - 4 \cdot 1 \cdot 1 = 5$$

[illegible]