

|                                                                                                                                 |                                                                                                                                               |                                                       |                                                                                                  |    |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------------------------------------------------|----|
| الف) $x^2 - 4x > 0$<br>$x(x-4) > 0$<br>$x=0$<br>$x > 4$<br>$D_f: (0, +\infty)$                                                  | ب)                                                                                                                                            | ج)                                                    | د) $\{x: -2 < x < 4\}$<br>$+ \quad - \quad + \quad -$<br>$D_f: (-\infty, -2) \cup (4, +\infty)$  | ٦  |
| الف) $4-x > 0 \rightarrow x < 4$<br>$x-2 > 0 \rightarrow x > 2$<br>$x > 2$<br>$D_f: [2, 4]$                                     | ب) $x^2+1 > 0 \rightarrow x^2 > -1 \rightarrow x > 1$<br>$D_f: (1, +\infty)$                                                                  | ج) $x-2 > 0 \rightarrow x > 2$<br>$D_f: (2, +\infty)$ | د) $ x +x^2 > 0$<br>$ x +x^2 \neq 0$<br>$ x +x^2 > 0 \rightarrow  x  > x^2$<br>$D_f = \emptyset$ | ٧  |
|                                                                                                                                 |                                                                                                                                               |                                                       |                                                                                                  | ٨  |
|                                                                                                                                 |                                                                                                                                               |                                                       |                                                                                                  | ٩  |
| الف) $\cos 120^\circ = -\frac{1}{2}$<br>$\sin = \frac{1}{2} \rightarrow 150^\circ, 30^\circ$<br>$\frac{4\pi}{3}, \frac{\pi}{6}$ | ب) $\cos 120^\circ = \frac{\sqrt{3}}{2}$<br>$\sin = -\frac{\sqrt{3}}{2} \Rightarrow 240^\circ, 300^\circ$<br>$\frac{4\pi}{3}, \frac{5\pi}{3}$ |                                                       |                                                                                                  | ١٠ |



۱- الف، رابطه تابع است، راز تفویض ریاضی طبع:

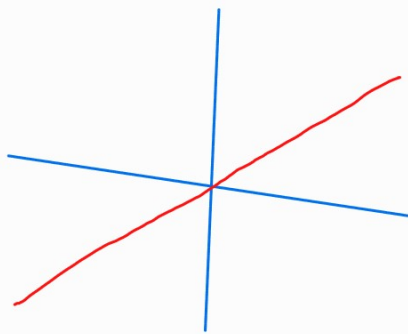
$$\begin{aligned} y_1^r &= 2x_1^r + x_1 \\ y_2^r &= 2x_2^r + x_2 \end{aligned} \xrightarrow{x_1 = x_2 = x} \begin{aligned} y_1^r &= 2x^r + x \\ y_2^r &= 2x^r + x \end{aligned} \rightarrow y_1^r = y_2^r \rightarrow y_1 = y_2 \quad \text{تابع است}$$

$$x = C \cdot S y$$

۲- مثال نقض

$$x=0 \rightarrow C \cdot S y=0 \rightarrow y = \frac{0}{2}, \frac{2 \cdot 0}{2}$$

تابع نیست



$$y = ax + b \quad \begin{array}{c} a=2 \\ | \\ 2 \end{array} \rightarrow 2 = 2(1) + b \rightarrow b=0$$

$$y = 2x$$

$$y = \frac{x+1}{x^2-1x}$$

$$x^2-1x \neq 0 \rightarrow x(x-1) \neq 0 \rightarrow D_f = \mathbb{R} - \{0, 1\}$$

$$y = \frac{x+1}{x^2-1x+14}$$

$$x^2-1x+14 \neq 0 \rightarrow \Delta = (-1)^2 - 4(14) < 0 \rightarrow D_f = \mathbb{R}$$

$$y = \frac{x+1}{x^2+x+1}$$

$$x^2+x+1 \neq 0 \rightarrow \Delta = (1)^2 - 4(1) < 0 \rightarrow D_f = \mathbb{R}$$

$$y = \frac{x+1}{x^2-1x^2}$$

$$x^2-1x^2 \neq 0 \rightarrow x^2(x^2-1) \neq 0 \rightarrow D_f = \mathbb{R} - \{\pm 1, 0\}$$

$$y = \frac{r^{n+1}}{n^{r+1}}$$

$$(-) - V$$

$$n^r + 1 \neq 0 \rightarrow n^r \neq -1$$

$$D_f = R$$

$$y = \frac{\sqrt{n-r}}{n-r} \rightarrow n \geq r$$

$$n-r \rightarrow n \neq r$$

$$\mathbb{Z}$$

$$D_f = [r, +\infty) - \{r\}$$

$$R - \{0\}$$

$$D$$