

الف) $y^3 - 2m^2 = 2m - 1$

$y^3 = 2m^2 + 2m - 1 \rightarrow y = \sqrt[3]{2m^2 + 2m - 1}$
 به سبب هر دو سمت فقط یک جواب جفت می یابیم
 $y_1^3 = 2m^2 + 2m - 1$
 $y_2^3 = 2m^2 + 2m - 1 \rightarrow y_1^3 = y_2^3 \rightarrow y_1 = y_2$
 تابع نسبت $\rightarrow$

ب) $m \cos y = y \cos m \xrightarrow{m = \frac{\pi}{2}} \frac{\pi}{2} \cos y = y \cos \frac{\pi}{2} = 0$
 $\cos y = 0 \rightarrow y = k\pi + \frac{\pi}{2}$
 $\Rightarrow$ تابع نسبت

ج) $\frac{m+y}{2} = \sqrt{my} \rightarrow m+y = 2\sqrt{my} \rightarrow m - \sqrt{my} + y = 0 \rightarrow (m - \sqrt{y})^2 = 0 \rightarrow m = \sqrt{y} \rightarrow m = y$
 $\Rightarrow$ تابع نسبت

د) $my^2 + 2m - y^3 - 2y = 0 \rightarrow (m-y)(y^2+2) = 0 \Rightarrow m=y \Rightarrow$ تابع نسبت
 $m(y^2+2) - y(y^2+2)$

الف) $|y| + m^2 = 2y$
 $y > 0 \rightarrow m^2 = y$
 $y < 0 \rightarrow m^2 = 2y \rightarrow \frac{1}{2}m^2 = y$
 تابع نسبت

ب) $[y] + [m] = 1$
 $m=0 \rightarrow [y] = 1$

$1 \leq y < 2 \Rightarrow$ تابع نسبت

$f(m) = \begin{cases} 2m^2 - b & |m-1| \geq 2 \Rightarrow m \geq 3 \text{ یا } m \leq -1 \\ a + 2m & -1 < m < 3 \end{cases}$
 $a+b=8$

$m-1 \geq 2 \Rightarrow m \geq 3$
 $m-1 \leq -2 \Rightarrow m \leq -1$
 $f(3) \rightarrow a+6 = 2 \times 9 - b \rightarrow a+b=12$

$f(m) = \begin{cases} a - b + m^2 \\ -m^2 - b + a \end{cases}$
 $D_f = [b, a] \rightarrow a+b=?$
 $\frac{a}{b} = \frac{1}{-1} \Rightarrow -a = a \times b \rightarrow b = -1$
 $\frac{a}{-1} = \frac{1}{-1} \Rightarrow -a = a + 1 \rightarrow 1 = a - 1 \rightarrow a = 2$
 $a+b = 2-1 = 1$

$y = \frac{2}{\sqrt{am^2 + bm + c}} > 0 \rightarrow D_y = (-\infty, 2)$
 $\frac{2}{a+c-3|b|} = 2 \rightarrow -2b-3|b|$
 $\Rightarrow -2b+3b = b$
 $\sqrt{bm+c} > 0 \rightarrow 2b+c=0 \rightarrow c=-2b$

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

$$D_y = (1, +\infty)$$

$$b = ?$$

با توجه به اینکه $x \geq 1$ و $x+b \geq 0 \Rightarrow b \geq -x$
 اگر $x=1$ و $x+b \geq 0$ و $x+b \geq 0$ و $x+b \geq 0$
 خب از آنجا که $x \geq 1$ و $x+b \geq 0$ و $x+b \geq 0$

$$y = \sqrt{x^2 - a} \geq 0$$

$$x(x^2 - 1) \geq 0$$

$$x(x-1)(x+1) \geq 0$$

$$\begin{array}{c} -1 \quad 0 \quad 1 \\ | \quad | \quad | \\ + \quad - \quad + \end{array}$$

$$x = \frac{1}{\sqrt{|x|-1}} > 0$$

$$|x| > 1$$

$$x > 1$$

$$x < -1$$

$$D_y = (-\infty, -1) \cup (1, +\infty)$$

$$y = \sqrt{\frac{1}{|x| - [x]}} \neq 0$$

$$|x| = [x]$$

$$x \geq 0 \rightarrow x = [x] \rightarrow 1 \leq x$$

$$x < 0 \rightarrow -x = [x] \rightarrow 1 \leq -x$$

$$\sqrt{x} + \sqrt{y} = 9$$

$$\sqrt{y} = 9 - \sqrt{x}$$

$$9 - \sqrt{x} \geq 0$$

$$9 \geq \sqrt{x}$$

$$D_F = [0, 81]$$

$$\Rightarrow D_y = [1, 2] \cup [10, 11]$$

$$y = \frac{1}{\sqrt{\left[x - \frac{1}{r}\right] + \left[x + \frac{r}{r}\right]}} = \frac{1}{\sqrt{\left[x - \frac{1}{r}\right] + \left[x - \frac{1}{r}\right] + 2}} = \frac{1}{\sqrt{2x - \frac{2}{r} + 2}}$$

$$2\left(x - \frac{1}{r}\right) + 2 > 0$$

$$\left(x - \frac{1}{r}\right) > -1$$

$$0 < x - \frac{1}{r} \rightarrow \frac{1}{r} < x \rightarrow \frac{1}{2} < x$$

$$D_F = \left[\frac{1}{2}, +\infty\right)$$

$$y = \sqrt{1 - \log(x-a)} \geq 0 \quad D_y = (b, c] \quad c-b = ?$$

$$x-a > 0 \quad x > \frac{a}{r}$$

$$1 \geq \log(x-a) \quad 10 \geq x-a \quad \frac{1+a}{r} \geq x$$

$$\begin{cases} \frac{1+a}{r} \geq x > \frac{a}{r} \end{cases}$$

$$b = \frac{a}{r}$$

$$c = \frac{1+a}{r}$$

$$\frac{1+a}{r} - \frac{a}{r} = \frac{1}{r} \neq 0$$