

از دو قسم به B

$$\{(1,1)(m,2)\} \Rightarrow m=3$$

$$\{(1,2)(1,n)\} \Rightarrow n^2-n+2=n^2-n-2 \Rightarrow n=-1$$

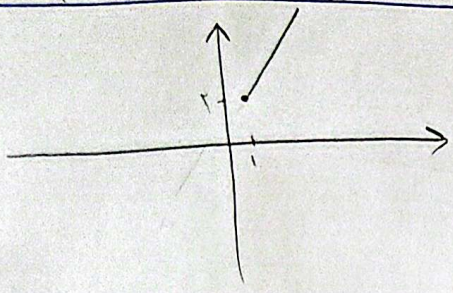
$$\{(1,1)(n,2)\} \Rightarrow n \neq -1 \Rightarrow n=2$$

الف) ۱, ۲, ۵

$$\{(1,2)(m,2)\} \Rightarrow m=2$$

$$\{(1,2)(a,2)\} \Rightarrow a=1 \quad (-1,1)(a,1) \rightarrow a=-1$$

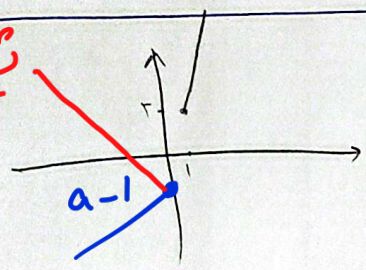
$$\{(1,1)(1,2)(1,2)(2,2)(2,n)\} \Rightarrow n \in \{1, 2, 3\} \quad (1,n)(1,2) \rightarrow n=2$$



$$n+a \leq 2 \Rightarrow 1+a \leq 2 \Rightarrow a \leq 1$$

۱, ۷۵

شیب + غلط!



$$a+n+a-1 < 2 \Rightarrow a-1 < 2 \Rightarrow a < 3$$

شیب $a+n+a-1$ صحیح بایه + باشد و درین
یک به یک نیست $a > 0$

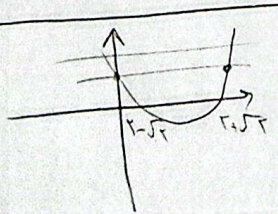
۱

$$n \rightarrow 0 < a < 3$$

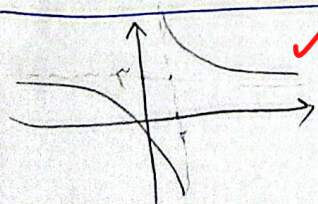
$$\begin{cases} y = n_1^2 + 2 \\ y = n_2^2 + 2 \end{cases} \Rightarrow n_1^2 + 2 = n_2^2 + 2 \Rightarrow n_1^2 = n_2^2 \Rightarrow n_1 = n_2$$

$$n = y^2 + 2 \Rightarrow y^2 = n - 2 \Rightarrow y = \sqrt{n-2}$$

الف) ۲



$$y = n^2 - 2 \Rightarrow n = \frac{y \pm \sqrt{y^2 - 8}}{2} = 2 \pm \sqrt{3}$$

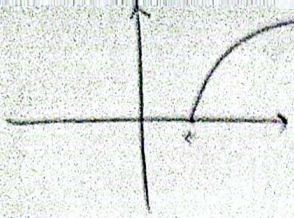


$$n = \frac{y+1}{y-2} \Rightarrow y = \frac{2n+1}{n-2}$$

الف) ۲

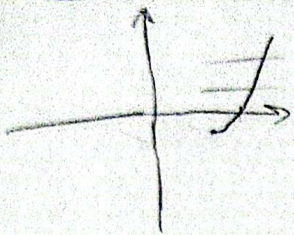
$$y = \frac{n+2}{n+2} = \frac{2(n+2)}{n+2} = 2$$

الف)



یک یک است ✓ $n\sqrt{y-1} = n^2y - 1 \Rightarrow y = n^2 + 1$ ✓ (الف) 4

(2)



یک یک است ✓ $n^2 - 2n + 1 = (n-1)^2$ (ب)
 $n_{min} = -\frac{b}{2a} = \frac{1}{2} = 1$
 $n = y^2 - 1 \Rightarrow y^2 = n+1 \Rightarrow y = \sqrt{n+1}$
 $\Rightarrow y = 2 + \sqrt{n+1}$ ✓

$n = y + \sqrt{y} \Rightarrow \sqrt{y} = n - y \Rightarrow n^2 = y^2 + y + 2y\sqrt{y} = y^2 + y + 2y(n-y) = y^2 + y + 2ny - 2y^2 = -y^2 + 2ny + y$
 $\Rightarrow y^2 - (1+2n)y + n^2 = 0 \Rightarrow y = \frac{1+2n \pm \sqrt{(1+2n)^2 - 4n^2}}{2} = \frac{1+2n \pm \sqrt{4n+1}}{2} = n + \frac{1}{2} \pm \sqrt{n + \frac{1}{4}}$

$\Rightarrow \begin{cases} a=1 \\ b=\frac{1}{2} \\ c=-\frac{1}{2} \end{cases} \Rightarrow a+2b+c = 1+1-1=1$ ✓

(2)

هم علامت

$y = \frac{n_1}{\sqrt{n_1^2-2}}$ $\Rightarrow \frac{n_1}{\sqrt{n_1^2-2}} = \frac{n_2}{\sqrt{n_2^2-2}} \Rightarrow \frac{\sqrt{n_1^2-2}}{n_1} = \frac{\sqrt{n_2^2-2}}{n_2} \Rightarrow \frac{n_1^2-2}{n_1^2} = \frac{n_2^2-2}{n_2^2} \Rightarrow \frac{n_1^2-2}{n_1^2} = \frac{n_2^2-2}{n_2^2}$
 $\Rightarrow \frac{-2}{n_1^2} = \frac{-2}{n_2^2} \Rightarrow \frac{1}{n_1^2} = \frac{1}{n_2^2} \Rightarrow n_1^2 = n_2^2 \Rightarrow n_1 = \pm n_2$ یک یک است ✓

(1/√5)

$f(n) = \frac{\sqrt{2n}}{\sqrt{n^2-1}}$

$\sqrt{n} - 1 = -\frac{1}{\omega} \Rightarrow \sqrt{n} = \frac{1}{\omega} \Rightarrow n = \frac{1}{\omega^2} = g^{-1}\left(-\frac{1}{\omega}\right)$

$\frac{n}{1+n} = -\frac{1}{\omega} \Rightarrow -2-2|n| = \omega n \xrightarrow{n>0} -2-2n = \omega n \Rightarrow \omega n = -2 \Rightarrow n = -\frac{2}{\omega} \Rightarrow \frac{1}{\omega^2} = -\frac{2}{\omega} \Rightarrow \frac{1}{\omega} = -2 \Rightarrow \omega = -\frac{1}{2}$
 $\Rightarrow f\left(-\frac{1}{\omega}\right) = -\frac{1}{\omega} \Rightarrow f\left(-\frac{1}{\omega}\right) + g^{-1}\left(-\frac{1}{\omega}\right) = -\frac{1}{\omega} + \frac{1}{\omega^2} = \frac{-\omega + 1}{\omega^2} = \frac{-(-\frac{1}{2}) + 1}{(-\frac{1}{2})^2} = \frac{-\frac{1}{2} + 1}{\frac{1}{4}} = \frac{\frac{1}{2}}{\frac{1}{4}} = 2$ ✓

(2)

$n \leq \sqrt{y-1} \Rightarrow n^2 \leq y-1 \Rightarrow y \geq n^2+1 = f(n) \Rightarrow g(n) \leq n^2+1+\sqrt{n^2+1}$
 $n^2+1+\sqrt{n^2+1} \leq 12 \Rightarrow t^2+t=12 \Rightarrow t^2+t-12=(t-3)(t+4)=0 \Rightarrow t=3$
 $\Rightarrow \sqrt{n^2+1} = 3 \Rightarrow n^2+1=9 \Rightarrow n^2=8 \Rightarrow n=2$ ✓

(2)