

$$g = -n^2 + bn + 3$$

$$\downarrow$$

$$n \mid -\frac{b}{a} \rightarrow -\frac{b^2 + 12}{-4} = \checkmark$$

$$\downarrow$$

$$b^2 + 12 = 48$$

$$\downarrow$$

$$b^2 = 36 \rightarrow \frac{b = 6}{b = -6}$$

۱

الف) $f(n) \Rightarrow n^2 + 2n^2 + 3 = 3n^2$ $\xrightarrow{x=2t}$ $t^2 + 2t + 3 = 0$

جواب صحیح برای n^2 $\rightarrow$ جواب صحیح ندارد $\Delta < 0$

و بعد ندارد $\leftarrow$ جواب صحیح برای n ندارد.

۲

ب) $f(n) \Rightarrow (5-n^2)^2 - 2(5-n^2) - 15 = 0$ $\rightarrow (5-n^2-5)(5-n^2+3) = 0$

$\downarrow$ $-n^2-1=0 \rightarrow n^2 = -1 \rightarrow$ جواب صحیح ندارد

$\downarrow$ $-n^2+3=0 \rightarrow n^2 = 3 \rightarrow \frac{n = \sqrt{3}}{n = -\sqrt{3}}$

$$5n^2 - 14n + m = 0$$

$$\downarrow$$

$$\alpha \mid B_2 \alpha + 2$$

$$\downarrow$$

$$5 = 2\alpha + 2 \rightarrow \frac{b}{a} = 5 \rightarrow 2\alpha + 2 = 5 \rightarrow \alpha = 1 \quad B_2 = 3$$

۳

$$3n^2 - 9n + m - 1 = 0 \rightarrow 3 = 2\alpha + m - 1 \rightarrow \frac{b}{a} = 3$$

$$\downarrow$$

$$3\alpha - B_2 = 3 \rightarrow 3\alpha + 2m - 3B_2 = 3$$

$$\downarrow$$

$$3(\alpha + m) - 3B_2 = 3 \rightarrow \alpha = 2 \rightarrow m - 1 = 0 \rightarrow m = 1$$

۴

$$-mn^2 + 6n + m^2 - 4 = 0$$

$$\downarrow$$

$$\alpha \mid B_2 \alpha + 1$$

$$\rightarrow B_2 \alpha + 1$$

$$\frac{m^2 - 4}{-m} = 1$$

$$\downarrow$$

$$m^2 - 4 = m$$

$$\downarrow$$

$$m^2 + m - 4 = 0$$

$$\downarrow$$

$$(m+2)(m-1) = 0 \rightarrow \frac{m = 1}{m = -2}$$

۵

$$m = 1 \rightarrow -n^2 + 6n - 1 = 0$$

$$m = -2 \rightarrow 2n^2 + 6n + 4 = 0 \rightarrow 2(n^2 + 3n + 2) = 0 \rightarrow 2(n+1)(n+2) = 0 \rightarrow n = -1$$

$\downarrow$ $n = -2$

$\downarrow$ $n = -1$

$\downarrow$ $n = 0$

$\downarrow$ $n = 1$

$\downarrow$ $n = 2$

$\downarrow$ $n = 3$

$\downarrow$ $n = 4$

$\downarrow$ $n = 5$

$\downarrow$ $n = 6$

$\downarrow$ $n = 7$

$\downarrow$ $n = 8$

$\downarrow$ $n = 9$

$\downarrow$ $n = 10$

$\downarrow$ $n = 11$

$\downarrow$ $n = 12$

$\downarrow$ $n = 13$

$\downarrow$ $n = 14$

$\downarrow$ $n = 15$

$\downarrow$ $n = 16$

$\downarrow$ $n = 17$

$\downarrow$ $n = 18$

$\downarrow$ $n = 19$

$\downarrow$ $n = 20$

$\downarrow$ $n = 21$

$\downarrow$ $n = 22$

$\downarrow$ $n = 23$

$\downarrow$ $n = 24$

$\downarrow$ $n = 25$

$\downarrow$ $n = 26$

$\downarrow$ $n = 27$

$\downarrow$ $n = 28$

$\downarrow$ $n = 29$

$\downarrow$ $n = 30$

$\downarrow$ $n = 31$

$\downarrow$ $n = 32$

$\downarrow$ $n = 33$

$\downarrow$ $n = 34$

$\downarrow$ $n = 35$

$\downarrow$ $n = 36$

$\downarrow$ $n = 37$

$\downarrow$ $n = 38$

$\downarrow$ $n = 39$

$\downarrow$ $n = 40$

$\downarrow$ $n = 41$

$\downarrow$ $n = 42$

$\downarrow$ $n = 43$

$\downarrow$ $n = 44$

$\downarrow$ $n = 45$

$\downarrow$ $n = 46$

$\downarrow$ $n = 47$

$\downarrow$ $n = 48$

$\downarrow$ $n = 49$

$\downarrow$ $n = 50$

$\downarrow$ $n = 51$

$\downarrow$ $n = 52$

$\downarrow$ $n = 53$

$\downarrow$ $n = 54$

$\downarrow$ $n = 55$

$\downarrow$ $n = 56$

$\downarrow$ $n = 57$

$\downarrow$ $n = 58$

$\downarrow$ $n = 59$

$\downarrow$ $n = 60$

$\downarrow$ $n = 61$

$\downarrow$ $n = 62$

$\downarrow$ $n = 63$

$\downarrow$ $n = 64$

$\downarrow$ $n = 65$

$\downarrow$ $n = 66$

$\downarrow$ $n = 67$

$\downarrow$ $n = 68$

$\downarrow$ $n = 69$

$\downarrow$ $n = 70$

$\downarrow$ $n = 71$

$\downarrow$ $n = 72$

$\downarrow$ $n = 73$

$\downarrow$ $n = 74$

$\downarrow$ $n = 75$

$\downarrow$ $n = 76$

$\downarrow$ $n = 77$

$\downarrow$ $n = 78$

$\downarrow$ $n = 79$

$\downarrow$ $n = 80$

$\downarrow$ $n = 81$

$\downarrow$ $n = 82$

$\downarrow$ $n = 83$

$\downarrow$ $n = 84$

$\downarrow$ $n = 85$

$\downarrow$ $n = 86$

$\downarrow$ $n = 87$

$\downarrow$ $n = 88$

$\downarrow$ $n = 89$

$\downarrow$ $n = 90$

$\downarrow$ $n = 91$

$\downarrow$ $n = 92$

$\downarrow$ $n = 93$

$\downarrow$ $n = 94$

$\downarrow$ $n = 95$

$\downarrow$ $n = 96$

$\downarrow$ $n = 97$

$\downarrow$ $n = 98$

$\downarrow$ $n = 99$

$\downarrow$ $n = 100$

$$n^2 - mn + p = 0 \rightarrow p < m < n$$

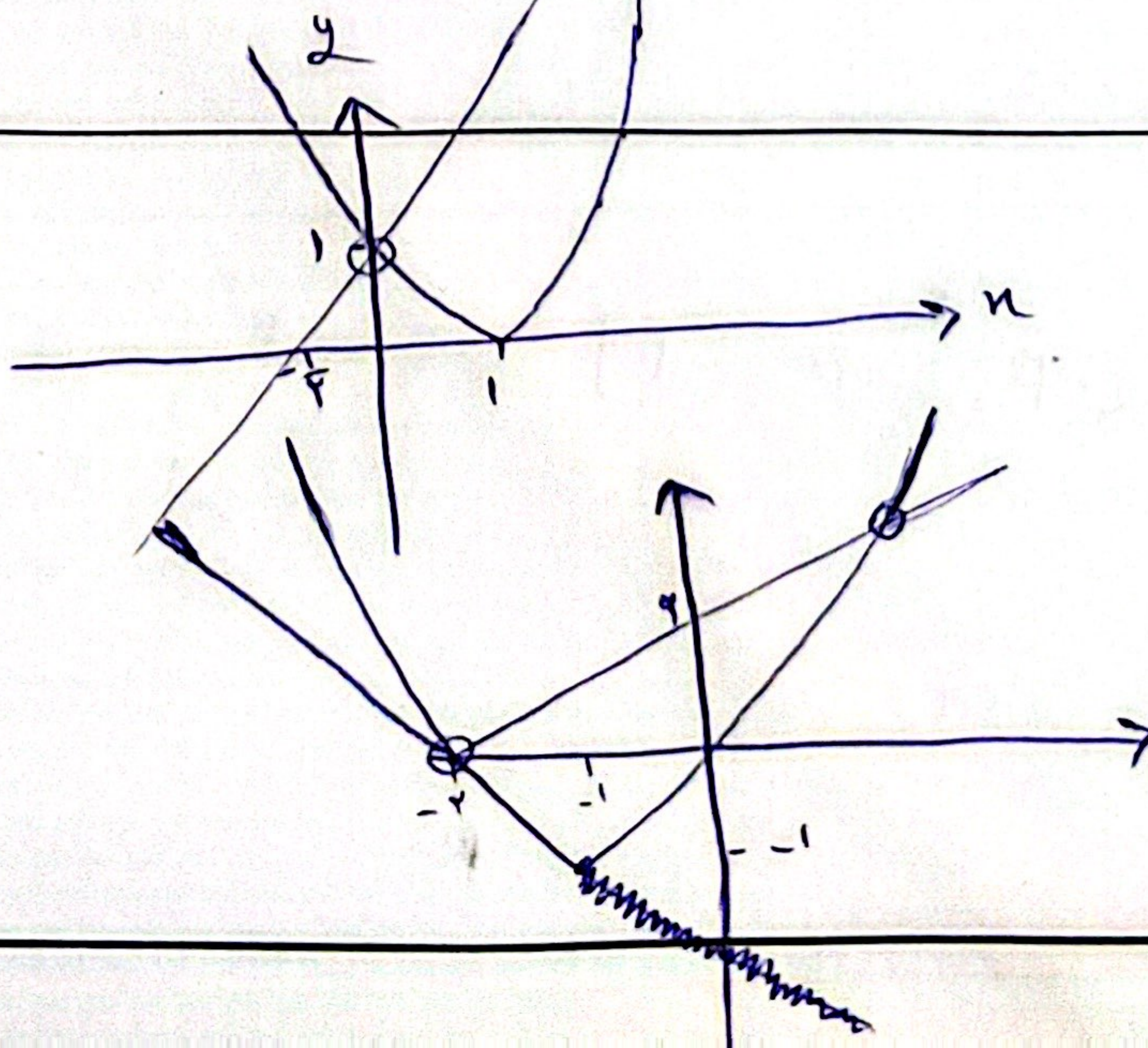
$$\alpha \beta = \frac{p}{m} \rightarrow \alpha = \frac{p}{m} \rightarrow \frac{14}{9} = \frac{p}{m} + p = 0 \rightarrow m = \frac{9p}{14}$$

$$n^2 - (n+m) = 0 \rightarrow \alpha = 1 \rightarrow 1 - \epsilon + m = 0 \rightarrow m = \epsilon$$

$$n^2 - \sqrt{n} + p = 0 \rightarrow \alpha = \frac{1}{\sqrt{n}} \rightarrow \alpha^2 = \frac{1}{n} \rightarrow \frac{\Delta}{4p} = \frac{1}{4n} \rightarrow \frac{1}{4n} = \frac{1}{4n} \rightarrow \frac{1}{4n} = \frac{1}{4n}$$

$$h(t) = -1.0t^2 + \omega \cdot t \rightarrow h = 0 \rightarrow -1.0t^2 + \omega \cdot t = 0 \rightarrow -1.0t(t - \omega) = 0 \rightarrow t = 0 \text{ or } t = \omega$$

$$h_{max} = \frac{\omega^2}{4} = \frac{1.0 \cdot 1.0}{4} = 0.25$$



$$(n-1)^2 = 2n+1$$

$$n^2 + 2n = |n+1|$$