

الف) $(n, 2) \in R \Rightarrow (n^2, n) \in R \Rightarrow n^2 - n = 2 \Rightarrow n(n-1) = 2$ ✓ $(n, 2) \in R \Rightarrow (n^2, n) \in R \Rightarrow n^2 - n = 2$ ✓ $(n, 2) \in R \Rightarrow (n^2, n) \in R \Rightarrow n^2 - n = 2$ ✓ $(n, 2) \in R \Rightarrow (n^2, n) \in R \Rightarrow n^2 - n = 2$ ✓ $(n, 2) \in R \Rightarrow (n^2, n) \in R \Rightarrow n^2 - n = 2$ ✓	۲
الف) $n-1 \leq 1 \Rightarrow n \leq 2 \Rightarrow R_1 \subseteq [2, \infty)$ ✓ $n-1 \leq 1 \Rightarrow n \leq 2 \Rightarrow R_1 \subseteq [2, \infty)$ ✓ $n-1 \leq 1 \Rightarrow n \leq 2 \Rightarrow R_1 \subseteq [2, \infty)$ ✓	۲
الف) $R_1 \subseteq [2, \infty)$ ✓ $R_2 \subseteq (-\infty, 2) \Rightarrow a(0) + a - 1 < 2 \Rightarrow a < 3$ ✓ $a > 0$ ✓ $a < 3$ ✓	۳
الف) $k_1 = k_2 \Rightarrow n_1^2 + 2 = n_2^2 + 2 \Rightarrow n_1^2 = n_2^2 \Rightarrow n_1 = n_2$ ✓ $k_1 = k_2 \Rightarrow n_1^2 + 2 = n_2^2 + 2 \Rightarrow n_1^2 = n_2^2 \Rightarrow n_1 = n_2$ ✓ $k_1 = k_2 \Rightarrow n_1^2 + 2 = n_2^2 + 2 \Rightarrow n_1^2 = n_2^2 \Rightarrow n_1 = n_2$ ✓	۴
الف) $\frac{n+1}{n-1} \Rightarrow n = \frac{n+1}{n-1} \Rightarrow n^2 - 1 = n + 1 \Rightarrow n^2 - n - 2 = 0$ ✓ $\frac{n+1}{n-1} \Rightarrow n = \frac{n+1}{n-1} \Rightarrow n^2 - 1 = n + 1 \Rightarrow n^2 - n - 2 = 0$ ✓ $\frac{n+1}{n-1} \Rightarrow n = \frac{n+1}{n-1} \Rightarrow n^2 - 1 = n + 1 \Rightarrow n^2 - n - 2 = 0$ ✓	۵

الف) $\sqrt{z} = m^2 \Rightarrow z = m^2 \Rightarrow m = \sqrt{z}$ $\checkmark$	۲
ب) $\frac{-b}{2a} = \frac{4}{2} = 2$ $\checkmark$ ب. معادله درجه یک است $z = m^2 - (m+2) + 1 \Rightarrow z = m^2 - m - 1 = (m-2)^2 - 1 = z$ $m - 2 = \pm \sqrt{z+1} \Rightarrow m = 2 \pm \sqrt{z+1} \Rightarrow z = 2 \pm \sqrt{z+1}$ $\checkmark$ حالت منفی غلط است زیرا بعد از ساده شدن از ۲ می آید $\checkmark$	۶
$z = m + \sqrt{m} \xrightarrow{\sqrt{m}=u} u^2 + u - z = 0 \quad \Delta = 1 - 4z$ $u = \frac{-1 \pm \sqrt{1-4z}}{2} \rightarrow m = \left(\frac{\sqrt{1-4z}}{2} - \frac{1}{2} \right)^2 \rightarrow F^{-1} = \left(\frac{\sqrt{1-4z}}{2} - \frac{1}{2} \right)^2$ $\left(\frac{-1}{2} - \frac{\sqrt{1-4z}}{2} + \frac{1}{2} \right) m + \frac{1}{2} - \sqrt{m} + \frac{1}{2} = m + b - \sqrt{m} - 1 \rightarrow a = 1 \quad b = \frac{1}{2} \quad c = -\frac{1}{2}$ $a + 2b + c = 1 + 1 - 1 = 1$ $\checkmark$	۷
$m = \frac{z}{\sqrt{z^2-1}} \Rightarrow m^2 = \frac{z^2}{z^2-1} \Rightarrow z^2 = \frac{m^2}{m^2-1} \Rightarrow z = \sqrt{\frac{m^2}{m^2-1}} = \frac{m}{\sqrt{m^2-1}}$ $\checkmark$ به ترتیب به بی بی $\checkmark$	۸
$\frac{m}{1+(m)} = \frac{-2}{5} \Rightarrow -2 + -2(m) = 5m \Rightarrow 5m + 2(m) = -2 \Rightarrow m = -\frac{2}{7}$ منفی می شود $m > 0 \Rightarrow -2 + 2m = 5m \Rightarrow m = -\frac{2}{3}$ $\checkmark$ $m < 0 \Rightarrow -2 - 2m = 5m \Rightarrow m = -\frac{2}{7}$ $\checkmark$ $\sqrt{m} = 1 \Rightarrow \frac{2}{5} \Rightarrow m = \frac{9}{25}$ $\checkmark$	۹
$m = \sqrt{z+1} \Rightarrow m^2 = z+1 \Rightarrow z = m^2 - 1 = f(m)$ $2(m) = m^2 + 1 + \sqrt{m^2+1} + 1 \Rightarrow \sqrt{m^2+1} = 2 \Rightarrow u^2 + u - 12 = 0 \quad \Delta = 1 + 48 = 49$ $u = \frac{-1 \pm 7}{2} \Rightarrow u = 3 \text{ or } -4$ $\sqrt{m^2+1} = 3 \Rightarrow m^2+1 = 9 \Rightarrow m^2 = 8 \Rightarrow m = \pm 2\sqrt{2}$ $\checkmark$	۱۰