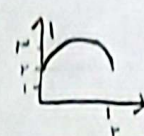
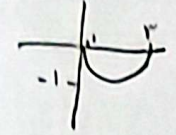
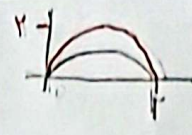


|                                                                                                                                                                                         |                                                                                                                                                                                                                     |   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| <p>ج ۱</p>                                                                                             | <p>الف)</p>                                                                                                                        | 1 |
| <p>د)</p>                                                                                              | <p>ب)</p>                                                                                                                         | ۱ |
| <p>ج ۱)</p> $(n-1)(n-\omega) < 0$ $\frac{1}{1+\phi} - \frac{\omega}{\phi+1} \quad (1, \omega)$                                                                                          | <p>الف)</p> $(n-\frac{3}{2})(n-\frac{1}{2}) > 0$ $\frac{n}{1+\phi} - \frac{3}{\phi+1} \quad (-\infty, \frac{1}{2}) \cup (\frac{3}{2}, \infty)$                                                                      | ۲ |
| <p>د)</p> $(n-1)(n-\frac{5}{2}) \leq 0$ $\frac{1}{1+\phi} - \frac{5}{\phi+1} \quad [1, \frac{5}{2}]$                                                                                    | <p>ج ۲)</p> $(n+\frac{1}{2})(n+\frac{5}{2}) \geq 0$ $\frac{1}{1+\phi} - \frac{1}{\phi+1} \quad (-\infty, -\frac{1}{2}] \cup [-\frac{5}{2}, \infty)$                                                                 | ۲ |
| <p>ج ۱)</p> $\frac{(n-1)(n-1)}{(n-1)(n-\omega)} \geq 0$ $\frac{1}{1+\phi} - \frac{1}{\phi+1} \quad (-\infty, -1] \cup (\omega, \infty)$                                                 | <p>الف)</p> $\frac{(n-1)(n-2)}{(n-\omega)} < 0$ $\frac{1}{1+\phi} - \frac{2}{\phi+1} \quad (-\infty, 1) \cup (2, \omega)$                                                                                           | ۳ |
| <p>ج ۲)</p> $\frac{(n-4)(n+4)}{(n-1)(n-1)} \quad \frac{1}{1+\phi} - \frac{4}{\phi+1} + \frac{4}{\phi+1}$ $(-\infty, -4] \cup (1, 4) \cup (4, \infty)$                                   | <p>الف)</p> $\frac{(n-1)(n^2+n+1)}{2(n^2-1)}$ $\frac{(n-1)(n+1)n}{2(n-1)(n+1)}$ $\Delta = 1 - 4 = -3 < 0$ $\frac{1}{1+\phi} - \frac{1}{\phi+1} + \frac{1}{\phi+1} \quad (-\infty, -1) \cup (0, 1) \cup (1, \infty)$ | ۴ |
| <p>ج ۱)</p> $n-2 \geq 0 \Rightarrow n \geq 2$ $3 - \sqrt{n-2} \geq 0 \Rightarrow \sqrt{n-2} \leq 3 \Rightarrow n-2 \leq 9 \Rightarrow n \leq 11$ $2 \leq n \leq 11 \Rightarrow [2, 11]$ | <p>الف)</p> $2-n \geq 0 \Rightarrow n \leq 2$ $4 - \sqrt{4-n} \geq 0 \Rightarrow \sqrt{4-n} \leq 4 \Rightarrow 4-n \leq 16 \Rightarrow -12 \leq -n \Rightarrow -14 \leq n \leq 2$ $[-14, 2]$                        | ۵ |

|                                                                                                                                                                                                                  |                                                                                                                                                                                                                                     |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| $r \cdot r^r \geq 0 \rightarrow r^r \leq r \rightarrow r^r \leq r$<br>$\sqrt{r} \leq r \leq \sqrt{r} \rightarrow [-\sqrt{r}, \sqrt{r}]$                                                                          | $r \cdot  m  - r \geq 0 \rightarrow r m  \geq r$<br>$ m  \geq r \rightarrow m \geq r$<br>$m \leq -r$<br>$(-\infty, -r] \cup [r, \infty)$                                                                                            | 6  |
| $n \geq 0$<br>$\sqrt{n} - r \neq 0 \rightarrow \sqrt{n} \neq r \rightarrow n \neq r^2$<br>$[0, r^2) \cup (r^2, \infty)$                                                                                          | $ m  - r^2 \neq 0 \rightarrow  m  \neq r^2$<br>$m \neq \pm r^2 \Rightarrow D = \mathbb{R} - \{-r^2, r^2\}$                                                                                                                          | 7  |
| $r \sin n + 1 \neq 0 \rightarrow r \sin n \neq -1$<br>$\sin n \neq -\frac{1}{r}$<br>$D = \mathbb{R} - \left\{ 2k\pi + \frac{\pi}{2}, 2k\pi - \frac{\pi}{2} \right\}$                                             | $r \cos n - 1 \neq 0 \rightarrow r \cos n \neq 1$<br>$\cos n \neq \frac{1}{r}$<br>$D = \mathbb{R} - \left\{ 2k\pi \pm \frac{\pi}{r} \right\}$                                                                                       | 8  |
| $r \sin^2 n - r^2 \neq 0 \rightarrow r \sin^2 n \neq r^2$<br>$\sin^2 n \neq \frac{r}{r} \rightarrow \sin^2 n \neq 1$<br>$D = \mathbb{R} - \left\{ k\pi \pm \frac{\pi}{r} \right\}$                               | $\cos n \neq 0 \rightarrow n \neq \frac{\pi}{2} + k\pi$<br>$\cot n - 1 \neq 0 \rightarrow \cot n \neq 1 \rightarrow n \neq k\pi + \frac{\pi}{4}$<br>$D = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4} \right\}$ | 9  |
| $r m - r  - \frac{1}{r} > 0$<br>$r m - r  > \frac{1}{r}$<br>$ m - r  > \frac{1}{r^2}$<br>$m - r > \frac{1}{r^2} \rightarrow m > r + \frac{1}{r^2}$<br>$m - r < -\frac{1}{r^2} \rightarrow m < r - \frac{1}{r^2}$ | $(-\infty, r - \frac{1}{r^2}) \cup (r + \frac{1}{r^2}, \infty)$                                                                                                                                                                     | 10 |
| $ m  \neq 0 \rightarrow m \neq 0$<br>$D = \mathbb{R} - \{0\}$                                                                                                                                                    | $r - r m  \geq 0$<br>$+r m  \leq +r \rightarrow  m  \leq r \rightarrow -r \leq m \leq r$<br>$[-r, r]$                                                                                                                               | 11 |