

الف) $t_n = 3n^2 - 1$

$2, 11, 24, 47, 74$

$\begin{matrix} \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 3(1)-1 & 3(2)-1 & 3(3)-1 & 3(4)-1 & 3(5)-1 \end{matrix}$

ب) $t_n = \frac{2n+1}{n+2}$

$\frac{3}{5}, \frac{5}{4}, 1, \frac{4}{3}, \frac{11}{9}$

$\begin{matrix} \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ \frac{2(1)+1}{1+2} & \frac{2(2)+1}{2+2} & \frac{2(3)+1}{3+2} & \frac{2(4)+1}{4+2} & \frac{2(5)+1}{5+2} \end{matrix}$

الف) $t_n = \frac{(-1)^n}{\sqrt{n+3}}$

$t_{13} = \frac{(-1)^{13}}{\sqrt{13+3}} = \frac{-1}{\sqrt{16}} = -\frac{1}{4}$

$t_{13} = -\frac{1}{4}$

ب) $t_n = 2n - \left\lfloor \frac{n}{2} \right\rfloor$

$t_{13} = 2(13) - \left\lfloor \frac{13}{2} \right\rfloor$

$t_{13} = 26 - \left\lfloor \frac{13}{2} \right\rfloor = 26 - 6 = 20$

$t_{13} = 20$

الف) $t_n = 2n - 10$

$2n - 10 < 0$

$2n < 10$
 $n < 5$

جمله منفی

ب) $t_n = n^2 - 11n + 10$

$t_n = (n-1)(n-10)$

$\begin{array}{c|c|c} 10 & 1 & \\ \hline + & - & + \\ \hline 0 & 0 & 0 \end{array}$

$10 - 1 + 1 = 10$

جمله مثبت

الف) $t_n = 2n - 14$

$2n - 14 \leq 0$

$2n \leq 14$
 $n \leq 7$

جمله نامشبت

ب) $t_n = n^2 - 12n + 27$

$t_n = (n-3)(n-9)$

$\begin{array}{c|c|c} 9 & 3 & \\ \hline + & - & + \\ \hline 0 & 0 & 0 \end{array}$

$9 - 3 + 1 = 7$

جمله نامشبت

$t_2 = 7$

$t_9 = 22$

$t_3 = 9$

$\begin{aligned} -a + 3d &= 7 \\ a + 1d &= 22 \\ \hline 4d &= 15 \Rightarrow d = 3 \end{aligned}$

$a + 3(3) = 7$

$a = -2$

$t_n = 3(n-1) - 2$

$t_3 = 3(2) - 2 = 4$

