

١) التوزيع

$$الف) t_n = r^n n^{r-1}$$

$$t_1 = r \times (1)^{r-1} = r \quad \cancel{t_r = r \times (r)^{r-1} = r^r}$$

$$r, 1/r, 1/r^2, \dots$$

$$t_r = r \times (r)^{r-1} = r^r$$

$$t_{r^2} = r \times (r^2)^{r-1} = r^r$$

$$\rightarrow) t_n = \frac{r_{n+1}}{n+\varepsilon} \Rightarrow$$

$$t_1 = \frac{r(1)+1}{1+\varepsilon} = \frac{r}{\varepsilon} \quad , \quad t_r = \frac{r \times r + 1}{r+\varepsilon} = \frac{r}{\varepsilon}$$

$$\frac{r}{\varepsilon}, \frac{r}{\varepsilon^2}, \frac{r}{\varepsilon^3}, \dots$$

$$t_r = \frac{r \times r + 1}{r+\varepsilon} = \frac{r}{\varepsilon} = 1, \quad t_{\varepsilon} = \frac{\varepsilon \times r + 1}{r+\varepsilon} = \frac{r}{\varepsilon}$$

$$t_a = \frac{r \times a + 1}{a+\varepsilon} = \frac{1}{a}$$

ب)

$$الف) t_n = \frac{(n-1)^n}{\sqrt{n+\varepsilon}} \Rightarrow t_r = \frac{(r-1)^r}{\sqrt[r]{r}} = \frac{r-1}{r} = 1 - \frac{1}{r}$$

ب)

$$\rightarrow) t_n = r^n - \left[\frac{r^n}{\varepsilon} \right] \Rightarrow t_r = r \times r - \left[\frac{r^r}{\varepsilon} \right] = r^r - \left[\frac{r^r}{\varepsilon} \right]$$

$\left[\frac{r^r}{\varepsilon} \right]$

$\left[\frac{r^r}{\varepsilon} \right]$

$$t_n = r^n - 1 \Rightarrow r^n - 1 < 0 \rightarrow r^n < 1 \rightarrow n < \frac{1}{r}$$

$$n = 1, 1/r, 1/r^2 \Rightarrow 1 \leq n < \frac{1}{r} \Rightarrow 1 < r$$

ب)

$$\rightarrow) t_n = n^r - 1 \Rightarrow n^r - 1 \leq n + \varepsilon < 0 \rightarrow (n-1)(n-\varepsilon) < 0$$

$$\frac{\varepsilon}{n-1} < 1 \Rightarrow \varepsilon < n-1 \Rightarrow \varepsilon < n-1 < n \Rightarrow \varepsilon < n$$

$\frac{\varepsilon}{n-1}$

$$الف) t_n = r^n - 1 \Rightarrow r^n - 1 \leq 0 \rightarrow r^n \leq 1 \Rightarrow n \leq \frac{1}{r}$$

ب)

$$1 \leq n \leq \frac{1}{r} \rightarrow 1, 1/r, \dots, \frac{1}{r} \Rightarrow 1 < r$$

$$\rightarrow) t_n = n^r - 1 \Rightarrow n^r - 1 \leq n + \varepsilon < 0 \rightarrow (n-1)(n-\varepsilon) < 0$$

$\frac{\varepsilon}{n-1}$

$$\varepsilon < n-1 \Rightarrow \varepsilon < n-1 < n \Rightarrow \varepsilon < n$$

$\frac{\varepsilon}{n-1}$

$$t_n = an + b$$

$$t_1 = a + b = 1$$

$$t_1 = a + b = 1$$

$$a = 1 \Rightarrow a = 1, b = -1$$

$$t_n = 1 \times n - 1 = n - 1$$

5

$$n = \frac{-b}{a} = \frac{-(-1)}{1} = 1 \Rightarrow t_1 = 1 - 1 = 0$$

$$t_1 = 1 + \xi + 1 = \xi$$

5

$$t_n = \frac{1}{n} \xi, -V, -1, -V, -\xi$$

$$t_1 = 1 \times 1 + b \times 1 + c = -1$$

$$a = \frac{1}{n} = 1 \Rightarrow b = 1, c = -1$$

$$t_1 = 1 \times 1 + -1 \times 1 + 1 = 1$$

5

$$t_n = -1, -1, 1, 1, -1$$

$$t_n = an^2 + bn + c$$

$$c = -1 \Rightarrow 1 \times 1 + b \times 1 + c = -1$$

5

$$t_n = 1 \times n^2 + 1 \times b + c = -1$$

$$b = -1, c = -1$$

$$(-\infty, a+\varepsilon] \cap [2a+1, +\infty) = [2a+1, a+\varepsilon]$$

$$a+\varepsilon \leq 2a+1$$

$$\boxed{\varepsilon \leq a}$$

یا باید استرکس نداشته باشند و همی شود
و یا باید برابر شوند تا یک مجموعه در یک مجموعه

شود
(۳)

اگر $\varepsilon = a$ $[a, a]$
اگر $\varepsilon < a$ $[2a+1, a]$

الف) $2, 4, 6, \dots, 99$
 $t_1 = 2, d = 2$

$$t_n = t_1 + (n-1)d \Rightarrow d = 2, t_1 = 2 \Rightarrow t_n = 2n$$

$$t_n = 99 = 2n \Rightarrow \boxed{n = 33} \text{ ت}$$

ب) $1, 3, 5, \dots, 100$
 $t_1 = 1, d = 2$

$$t_n = 100 = 1 + (n-1)2 \Rightarrow 100 = 1 + 2n - 2 \Rightarrow 100 = 2n - 1 \Rightarrow 101 = 2n \Rightarrow n = 50.5$$

$$\boxed{n = 50} \text{ ت}$$

ج) $1, 3, 5, \dots, 99$
 $t_1 = 1, d = 2$

$$t_1 = 1, d = 2$$

$$t_n = 99 = 1 + (n-1)2 \Rightarrow 99 = 1 + 2n - 2 \Rightarrow 99 = 2n - 1 \Rightarrow 100 = 2n \Rightarrow n = 50$$

$$n = 50$$

$$n(A \cup B) = n(A) + n(B) - n(A \cap B) =$$

$$33 + 20 - 4 = 49$$

(۳)