

$$70993 = \frac{t_1(-16383)}{-3}$$

$$212979 = 16383 t_1$$

$$\therefore t_1 = 13$$

⑤

المتتابعة الهندسية  
1, 6, 36, ...  $t_1 = 1$   $r = 6$

$$\therefore S_n = \frac{t_1(1-r^n)}{1-r}$$

$$1555 = \frac{(1)(1-6^n)}{1-6}$$

$$1555 = \frac{1-6^n}{-5}$$

$$-7775 = 1-6^n$$

$$6^n = 1+7775$$

$$6^n = 7776$$

$$6^n = 6^5$$

$$\therefore n = 5$$

⑥

$$\therefore t_2 + t_3 = 12$$

$$t_4 + t_5 = 108$$

$$S_6 = ?$$

$$\therefore t_2 + t_3 = t_1 r^1 + t_1 r^2 = 12$$

$$\rightarrow t_1 r(1+r) = 12 \rightarrow ①$$

$$t_4 + t_5 = t_1 r^3 + t_1 r^4 = 108$$

$$\rightarrow t_1 r^3(1+r) = 108 \rightarrow ②$$

بقسمة ② على ① ينتج أن:

$$\frac{t_1 r^3(1+r)}{t_1 r(1+r)} = \frac{108}{12}$$

$$\frac{t_1 r^3(1+r)}{t_1 r(1+r)} = 12$$

$$r^2 = 9 \rightarrow r = \pm 3$$

مرفوض  $r = -3$  لأن الحدود موجبة

$$① \quad n=5, \quad t_1=5, \quad r=\frac{15}{5}=3$$

$$\therefore S_n = \frac{t_1(1-r^n)}{1-r}, \quad r \neq 1$$

$$\therefore S_5 = \frac{5(1-3^5)}{1-3}$$

$$= \frac{5(1-243)}{-2}$$

$$= \frac{5(-242)}{-2} = 605$$

②

$$t_n = t_1 r^{n-1}$$

$$\therefore t_n = 3(-2)^{n-1}$$

$$\therefore t_1 = 3(-2)^{1-1} = 3(-2)^0 = 3$$

$$t_2 = 3(-2)^{2-1} = 3(-2)^1 = -6$$

$$\therefore r = \frac{t_2}{t_1} = \frac{-6}{3} = -2$$

$$n=8$$

$$\therefore S_8 = \frac{3(1-(-2)^8)}{1-(-2)}$$

$$= \frac{3(1-256)}{1+2}$$

$$= -255$$

③

$$t_1 = 256, \quad r = \frac{1}{2}, \quad t_n = 2$$

$$\therefore S_n = \frac{t_1 - t_n r}{1-r}$$

$$\therefore S_n = \frac{256 - 2(\frac{1}{2})}{1-\frac{1}{2}} = \frac{255}{\frac{1}{2}} = 510$$

$$④ \quad t_1 = ? \quad , \quad r = 4 \quad , \quad S_7 = 70993$$

$$\therefore S_7 = \frac{t_1(1-r^n)}{1-r}$$

$$70993 = \frac{t_1(1-4^7)}{1-4}$$

$$70993 = \frac{t_1(1-16384)}{-3}$$