

$$a_n = 5, 9, 13, 17, \dots$$

$\xrightarrow{+4} \quad \xrightarrow{+4}$

$$E_0 + 12F$$

(ب)

$$E_{n+1}$$

(الف)

(1)

$$a_n = 4, 10, 16, 22, \dots$$

$\xrightarrow{+6}$

$$\frac{S}{r} (a_1 + a_n) = 5 (4 + 22) = 130 \quad (\text{الف})$$

(٢)

$$r + a_1 = r (E_{n+1} + 1) = 192$$

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$$r + a_1, r + a_2, r + a_3, \dots, r + a_n$$

$\xrightarrow{+a_1}$

$$1 + \sqrt{3}, 2, 1 + \sqrt{3}$$

$\xrightarrow{+1-\sqrt{3}}$

(٣)

$$r + a_1 - r + a_2 = 101 \Rightarrow a_1 = 1 - \sqrt{3} \rightarrow r a_1 = r(1 - \sqrt{3})$$

(٤)

$$a_n = 5^x, r \times 5^x, 5^8$$

$$b_n = x, r, y \Rightarrow \frac{x+y}{r} = 2$$

$$y = 2 - x \leftarrow x + y = 2$$

$$x \cdot y = r$$

$$\frac{5^x + 5^8}{r} = r \times 5^x$$

$$\frac{5^x + 5^8}{r} = r \times 5^x \Rightarrow \frac{5^x + 5^8}{r} = r \times 5^x \Rightarrow \frac{5^x + 5^8}{r} = r \times 5^x$$

$$1 + 5^{8-x} = r \Rightarrow 5^{8-x} = r - 1$$

$$8 - x = 1 \Rightarrow x = 7$$

$$r - 5, r - 1, r, \dots \Rightarrow -5, 0, 5, \dots$$

$\xrightarrow{+5}$

$$a_n = 3^{n-4}$$

(٥)

$$r + 5(3^x - 5) = 92$$

$$\frac{r - 5}{r} = r - 1 \Rightarrow r - 5 = r^2 - r$$

$$x = \frac{1}{r}$$

$$a_n = 3, 5, 7, \dots \quad r_{n+1} = \frac{a_{n+1}}{a_n} = \frac{5}{3}, \frac{7}{5}, \dots$$

(٦)

$$b_n = 3, 5, 7, \dots \quad r_{n-1} = \frac{a_{n-1}}{a_n} = \frac{3}{5}, \frac{5}{7}, \dots$$

$$a_1 + a_2 + a_3 = 11$$

$$-1 \times (r_{n+1} + r_{n+2} + r_{n+3})$$

$$a_1 + a_2 + a_3 = 10$$

$$r_{n+1} + r_{n+2} = 10$$

$\Rightarrow$

$$r_{n+2} = 1$$

$$a_{n+2} = 1$$

(٧)

$$\frac{a_3 - a_2 + a_1}{a_1} = \frac{3 - 5 + 3}{3} = \frac{1}{3}$$

