

10

11

لینا

در این بخش

1) $a_n = \frac{1}{r} \times r^n$

$\frac{1}{r} \times r^{n-1} = a \times r^{n-1} \quad r=2$

و) $\frac{1}{r} \times r^9 = 254$

و) $\frac{a_{14}}{a_{12}} = \frac{a \times r^{14}}{a \times r^{12}} = r^2 = 14$

ج) $a_1 = a \times r^0 = \frac{1}{r} \times 1 = \frac{1}{r}$ $\sqrt{r \times 254} = \pm b \quad b = \pm 14r$

$a_{12} = a \times r^{11} = \frac{1}{r} \times 2^{11} = 254$

د) $121 = \frac{1}{r} \times r^{n-1}$
 $254 = r^{n-1}$

$r^1 = r^{n-1} \quad n=2 \quad n=9$

ر) $a_2 = 12 \quad a_9 = 94$

$a \times r^1 = 12 \quad a \times r^8 = 94$

$a \times 14 = 12 \quad a \times r^8 = 94$
 $a = \frac{12}{14} = \frac{6}{7}$
 $r^8 = \frac{94}{6/7} = 118$
 $r = 2$

س) $a_1 \times a_2 \times a_3 \times a_4 \times a_5 = 2 \times 2 \times 2$

$a \times r^0 \times a \times r^1 \times a \times r^2 \times a \times r^3 \times a \times r^4 = 2 \times 2 \times 2$

$a_1 \times a_2 = a \times r = 2$

و) $a \times r^0 = 2$
 $a = 2$

$a \times r^1 = 2$
 $r = 1$

$a \times r^0 = 2 \quad a \times r^1 = 2$

ف) $r^a, \sqrt{r}, r^b$

$\sqrt{r} = r^{\frac{1}{2}}$

$\frac{a+b}{r} = ?$

$\frac{a}{r} = \frac{r}{4}$

$r^a \times r^b = (r^{\frac{a}{2}})^2$

$a+b=4$

د) $a \times r = 1-21$

$a \times r^2 = 21$

$a \times r^3 = 21+1$

$a \times r^4 \times a \times r^0 = a \times r^4$

$(1-m)(1+m) = 21$

$1-21r = 21r$

$1 = 42r$

$\frac{1}{r} = 42$

$\frac{r}{r} \times \frac{1}{r} = 21$

Parsian

$1 - (-\frac{\sqrt{r}}{r}) \rightarrow \oplus$
 $-\frac{\sqrt{r}}{r} \rightarrow \ominus$
 $1 - \frac{\sqrt{r}}{r} \rightarrow \oplus$

در اینجا دو حالت داریم
1- $r = 1$
2- $r = 4$

1 /

4) $a + ar^r = 1A$

تکانه اول

$ar + ar^r = 1r$

$a(1+r^r) = 1A$

$ar(1+r) = 1r$

$ar(1+r) = 1r^r$

$a(1+r)(1-r+r^r) = 1A \cdot r$

$\frac{r}{1-r+r^r} = \frac{r}{r}$

$r=1 \rightarrow a = 1A \times \frac{1}{r} \rightarrow a = 1A \rightarrow 1, 1, 1, 1$
 $r=1 \rightarrow a=1 \rightarrow 1, 1, 1, 1$

$\frac{1}{1-r+r^r} = r$

$1r = 1 - 1r + 1r^r$

$0 = 1r^r - 1r + 1$

$r = \frac{1 \pm \sqrt{1 - 4 \times 1 \times 1}}{2} = \frac{1 \pm 1}{2} \rightarrow \frac{1}{2}$

5) ~~$a + ar + ar^2 = 1r$~~ $\frac{a}{r} + a + ar = 1r$

$\frac{a}{r} \times r + a \times r + ar \times r = 1r$
 $a + ar + ar^2 = 1r$

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

$a = r$

$1r = r + r + r$

$0 = r^r - 1r + r$

$\frac{a}{r} + a + ar$
 $r=1 \rightarrow 1, 1, 1$
 $r=r \rightarrow \frac{r}{r}, \frac{r}{r}, \frac{r}{r}$
 $1, r, r$

6) $a_n = 1, 4, 16, \dots$

$x^r \times x^r = r$
 $r \times r^r$

مقدار = $(1 \times 4 \times 16) \times \frac{1}{r}$

$S_n = a \times \frac{r^n - 1}{r - 1} = 1 \times \frac{r^3 - 1}{r - 1} = 19$

$(1 \times 4 \times 16) \times \frac{1}{r} = 19$
 $r^3 = 19r$

7) a, ar, ar^2

مقدار $\rightarrow ar - a = a(r-1)$ مقدار $\rightarrow ar^2 - ar = ar(r-1)$ مقدار $\rightarrow ar^3 - ar^2 = ar^2(r-1)$

$\frac{a(r-1)}{r} + \frac{a(r-1)r}{r} + \frac{a(r-1)r^2}{r} = \dots$

مقدار $\rightarrow a(r-1)$

مقدار r دارد

Parsian

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

$a \times r^{n-1}$

1.2) الف) $S_n = \frac{n}{r} (ra + (n-1)d)$

المجموع

① $S_n = a, a+d, a+2d, \dots, a+(n-1)d$
 $S_n = a+(n-1)d, a+(n-2)d, \dots, a$ (مقلوب)

$rS_n = \underbrace{ra + (n-1)d + ra + (n-1)d + \dots + ra + (n-1)d}_{n \text{ terms}}$

$rS_n = n \times (ra + (n-1)d)$

$S_n = \frac{n}{r} \times (ra + (n-1)d) \quad \checkmark$

→ $S_n = ax \frac{q^n - 1}{q - 1}$

② $S_n = a, ar, ar^2, \dots, ar^{n-1}$
 $rS_n = ar, ar^2, ar^3, \dots, ar^n$ (x r)

$S_n - rS_n = a - ar^n$

$S_n(1-r) = a \times \frac{1-r^n}{1-r}$

$S_n = ax \frac{1-r^n}{1-r} \quad \checkmark$