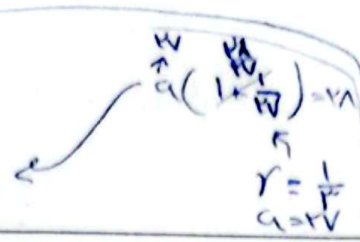
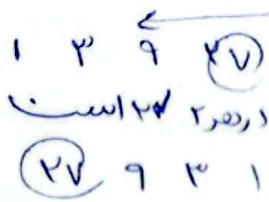


$$a_1 + ar^k = M \rightarrow a + ar^k = M \rightarrow a(1+r^k) = M$$

$$a_1 + ar^k = 17 \rightarrow a + ar^k = 17 \rightarrow a(r(1+r)) = 17$$

$$\frac{1+r^k}{r(1+r)} = \frac{M}{17}$$



$$1 + r + r^2 + \dots + r^k = \frac{1-r^{k+1}}{1-r}$$

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$$a_1 + ar^k = 17$$

$$a + ar^k = 17 \rightarrow a + ar^k = 17 \rightarrow a(1+r^k) = 17$$

$$a = \frac{17}{1+r^k}, ar^k = 17 - a = 17 - \frac{17}{1+r^k}$$

$$\frac{17}{1+r^k} + 17r^k = 17$$

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

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

$r = \frac{1}{r^k} \rightarrow 1, r, r^2$  (values)  
 $r = \frac{1}{r^k} \rightarrow r, r^2, r^3$  (values)

$$1 + r + r^2 + \dots + r^k = \frac{1-r^{k+1}}{1-r}$$

$$a_1 + ar^k = - (1-r^{k+1}) \rightarrow a(1+r^k) = - (1-r^{k+1})$$

$$(r^k + r^9)^n \leftarrow (r^k + r^9)^n \leftarrow (a_1 + ar^k)^n$$

$$a_1 = r^k, a_1 = r$$

$$a_1 = r^k, a_1 = r$$

$$a_n = aq^{n-1}$$

$$d_n = a_{n+1} - a_n$$

$$d_n = aq^n - aq^{n-1} = a(q-1)q^{n-1}$$

$$\frac{d_{n+1}}{d_n} = \frac{a(q-1)q^n}{a(q-1)q^{n-1}} = q$$

$$q = 1 + r$$

$$0 = d_n$$

$$a, a+d, a+2d, \dots, a+(n-1)d \rightarrow a + (n-1)d$$

$$a + (d(n-1)) \rightarrow \frac{d(n-1)}{1} \leftarrow \frac{d(1+(n-1))}{1}$$

$$a, aq, aq^2, \dots, aq^{n-1} \rightarrow aq^n \rightarrow aq + aq^2 + aq^3 + \dots + aq^{n-1} + aq^n$$

$$S_n - 1S_n = a - aq^n \rightarrow S_n(1-q) = a(1-q^n) \rightarrow$$

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

الف)  $\frac{1}{x^2} \cdot \frac{1}{x^2} \rightarrow \frac{1}{x^4} \rightarrow \frac{1}{x^4} \rightarrow \frac{1}{x^4} \rightarrow 2^4 \rightarrow 16$

ب)  $\frac{a_{100}}{a_{11}} = \frac{1}{9} \rightarrow q^9 = \frac{1}{9} \rightarrow 9q^9 = 1 \rightarrow 9 \times \frac{1}{9} = 1$

ج)  $a_1 a_2 a_3 \rightarrow 1 \times 2 \times 4 \rightarrow 1 \times 2 \times 4 \rightarrow \sqrt{1 \times 2 \times 4} = 2\sqrt{2} \quad a_6 = b^6$

د)  $128 = \frac{1}{3} r^{n-1} \rightarrow 384 = r^{n-1} \rightarrow r^{n-1} = 384 \rightarrow n = 9$

$a_{10} = 12 \quad \frac{a_9}{12} = 8 = q^2 \rightarrow q = 2$

$a_1 = 99$

$99 \times 2^9 = 10000$

$99 \times 512 = 50688$

$a_1 a_2 a_3 \dots a_n = 2^4 3^3$

$a_1 r^0 = 2^4 3^3$

$a_1 r^2 = \frac{2^4 3^3}{r^2}$

$a_1 r^k = a_1 r^k$

$(a_1 r^k)^k \rightarrow r^{k^2} = 9$

$c = a + b$

$\frac{c}{r} = \frac{a+b}{r} \rightarrow rc = a+b \rightarrow c = \frac{a+b}{r}$

$r^a, r^b, r^c$

$q^2 a_{10} = 1 - a$

$q^2 a_{11} = a$

$a_{11} = a + 1$

$a_{11}^2 = a_{10} a_{12}$

$x^2 = (1-a)(1+a)$

$x^2 = 1 - a^2$

$1 - x^2 = 1 \rightarrow x^2 = 0 \rightarrow a = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

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