

دسته نهم - عدد اول $q^2 = 11 = 1 + 10$
 $11 + 1 = 12 = 1 + 11$
 $\Rightarrow \frac{12 + 11}{2} = \frac{23}{2}$

$\{1, 2, 3\}$, $\{4, 5, 6, 7, 8, 9, 10, 11, 12\}$
 $\{13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30\}$
 $\Rightarrow \frac{121 + 244}{2} = \frac{365}{2}$

$\epsilon_1 = 2, \epsilon_2 = 3, \epsilon_3 = 2, \epsilon_4 = 3, \epsilon_5 = 0$
 $\epsilon_6 = 2 + a, \epsilon_7 = 1, \epsilon_8 = 3, \epsilon_9 = 1 + a, \epsilon_{10} = 1 + a$
 $\epsilon_1 + \epsilon_2 + \dots + \epsilon_{10} = 19 \Rightarrow \epsilon_1 + a + \epsilon_2 + 1 + a + \epsilon_3 + 0 + \epsilon_4 + a + 1 + a + \epsilon_5 = 19$
 $\Rightarrow 2 + 3 + 2 + 3 + 0 = 19 \Rightarrow a = -1$
 $\Rightarrow \epsilon_1 + \epsilon_2 + \dots + \epsilon_{10} = 19$
 $= 0 + 0 + 1 + 1 + 1 + 1 + \dots + 1 \Rightarrow (1 \times 1) + (2 \times 0) = 9$

$n^y = \frac{1}{v_c} x - 1 \Rightarrow -\frac{n^y}{a} + bn + c$
 $n_a = -a + ab + c = 1$
 $n_v = -\frac{a}{a} + vb + c = 1$
 $b = 2, c = -1$
 $\Rightarrow \frac{\epsilon_{10}}{t_1} = \frac{a}{t_1} = \frac{a}{1} = a$

$a + 3d = a_1 + d_1$
 $a + 4d = a_1 + d_1$
 $a_1 + 9d_1 = 0 \Rightarrow a_1 = -9d_1$
 $\Rightarrow a + 3d = -9d_1$
 $a + 4d = -9d_1$
 $\Rightarrow \frac{\epsilon_{10}}{d} = \frac{a_1 + d_1}{d} = \frac{-9d_1 + d_1}{d} = \frac{-8d_1}{d} = -8$

$4a^4 = 4a^2 a_1 + 4a^2 a_1 \Rightarrow 4(a+d)^4 = 4a^2(a+d) + 4a^2(a+d)$ $\Rightarrow 4a^4 + 4d^4 + 16da = 4a^3 + 4da + 4a^3 + 4da \Rightarrow 4a^4 + 4d^4 = 4a^3 + 4da$ $\Rightarrow a^4 + d^4 = a^3 + da \Rightarrow (a+d)(a^3 - da) = 0 \Rightarrow a = -\frac{d}{a} \Rightarrow a^2 = -d$ $\Rightarrow \frac{a+d}{2} \Rightarrow a = -d \Rightarrow \frac{-d+d}{2} = 0$ $\Rightarrow a = \frac{d}{2} \Rightarrow \frac{d}{2} + d \Rightarrow \frac{3d}{2} = \frac{3d}{2}$	6
$b = d, b, b+d, b, b-d, b+d \Rightarrow b^4 + d^4 + b^4 = b^4 + d^4 + b^4 = b^4 + d^4$ $\Rightarrow d^4 + b^4 = 0 \Rightarrow d^4 = -b^4 \Rightarrow d = \pm b$ $rq = \frac{b-d}{b} = 1 - \frac{d}{b} = 1 - 1 = 0$	7
$\frac{b}{r}, b, br, r^2 b, \frac{r^2 b}{r}, br \Rightarrow b(r+r) = \frac{2b}{r}$ $\Rightarrow r^2 + r - \frac{2}{r} = 0 \Rightarrow (r-1)(r+2) = 0 \Rightarrow r = 1, r = -2$ $\Rightarrow \frac{2}{r} = 1 \Rightarrow r = 2$	8
$\frac{a^4 q^4}{a^4 q^4} + \frac{a^4 q^4}{a^4} = 4 \Rightarrow \frac{q^4}{a^4} + \frac{q^4}{a^4} = 4$ $\frac{q^4}{a^4} = 2 \Rightarrow 2^4 + 2 - 4 = 0 \Rightarrow (2+1)(2-1) = 0$ $\Rightarrow \frac{a^4}{2^4} = \frac{a^4}{a^4} = \frac{a}{q} = \frac{1}{2} \Rightarrow \frac{1}{2} = \frac{1}{2}$	9
$a q^4 = \sqrt{a q^4}, a q^4 = \sqrt{a q^4} = \sqrt{a q^4}$ $\Rightarrow a^4 q^4 = a q^4 \Rightarrow a q^4 = 1 = \sqrt{1}$ $\square, 1, \square, \square, \sqrt{1} \Rightarrow q^4 = \frac{1}{1} \Rightarrow q = 1 \Rightarrow \frac{1}{1} = 1$	