

19, 15, 10

دوره سیمینار

کتاب 15

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$$\frac{x}{q} \quad x \quad xq$$

$$x^r = y^r \Rightarrow x = y$$

①

$$\frac{x}{q} + x + xq = x \left(\frac{1}{q} + 1 + q \right) = r1 \quad \text{f}$$

$$\Rightarrow \frac{q^r + 1 + q}{q} = \frac{r1}{r} \Rightarrow r q^r + r + r q - r1 q = 0$$

$$r q^r - 1 r q + r = 0 \Rightarrow$$

$$q^r - 1 r q + 1 r = 0 \quad (q - 1 r)(q - 1) = 0$$

$$q = \frac{r1 r}{r} = \frac{1}{r}$$

$\in \omega \Rightarrow \text{جواب}$

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

$$(x^r - r)(x^r + r) = (r x)^r \Rightarrow x^r - r + r x^r = r x^r \quad \text{f}$$

$$x^r - r x^r - r = 0 \Rightarrow (x^r - r)(x^r + r) = 0$$

$$x^r = r \Rightarrow x = \pm r$$

$$x = r$$

$$x^r + r = r + r = 1$$

$$r x = r x^r = r$$

$$x^r - r =$$

$$x = -r \rightarrow x^r + r = (-r)^r + r = 1 \quad r x = -r \quad x^r - r = r$$

$$a_1 = x^r + r = 1$$

$$S_v = a_1 \left(\frac{q^n - 1}{q - 1} \right) = 1 \left(\frac{\left(\frac{1}{r} \right)^n - 1}{\frac{1}{r} - 1} \right)$$

$$= 1 \left(\frac{\frac{1}{r^n} - 1}{-\frac{1}{r}} \right) = 1 \left(\frac{\frac{1 - r^n}{r^n}}{-\frac{1}{r}} \right) = 1 \times \frac{1 - r^n}{r^{n-1}} = \frac{1 - r^n}{r^{n-1}}$$

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$$1 + q + q^2 + q^3 + q^4 = \frac{121}{11}$$

(2) (1)

$$S_d = \frac{q^5 - 1}{q - 1} = \frac{q^5 - 1}{q - 1} = \frac{121}{11} \Rightarrow 11q^5 - 11 = 121q - 121$$

$$11q^5 - 121q + 110 = 0$$

$$S_d = \frac{121}{11} \left(\frac{q^5 - 1}{q - 1} \right) = \boxed{11q^4}$$

$$\frac{4q}{1} = q^4 \Rightarrow q = \pm 1$$

$$1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100$$

$$\frac{1}{q^4} = q^4 \Rightarrow q = \pm 1$$

$$1, -1, 2, -2, 3, -3, 4, -4, 5, -5, 6, -6, 7, -7, 8, -8, 9, -9, 10, -10, 11, -11, 12, -12, 13, -13, 14, -14, 15, -15, 16, -16, 17, -17, 18, -18, 19, -19, 20, -20, 21, -21, 22, -22, 23, -23, 24, -24, 25, -25, 26, -26, 27, -27, 28, -28, 29, -29, 30, -30, 31, -31, 32, -32, 33, -33, 34, -34, 35, -35, 36, -36, 37, -37, 38, -38, 39, -39, 40, -40, 41, -41, 42, -42, 43, -43, 44, -44, 45, -45, 46, -46, 47, -47, 48, -48, 49, -49, 50, -50, 51, -51, 52, -52, 53, -53, 54, -54, 55, -55, 56, -56, 57, -57, 58, -58, 59, -59, 60, -60, 61, -61, 62, -62, 63, -63, 64, -64, 65, -65, 66, -66, 67, -67, 68, -68, 69, -69, 70, -70, 71, -71, 72, -72, 73, -73, 74, -74, 75, -75, 76, -76, 77, -77, 78, -78, 79, -79, 80, -80, 81, -81, 82, -82, 83, -83, 84, -84, 85, -85, 86, -86, 87, -87, 88, -88, 89, -89, 90, -90, 91, -91, 92, -92, 93, -93, 94, -94, 95, -95, 96, -96, 97, -97, 98, -98, 99, -99, 100, -100$$

$$\frac{4q - 1}{q} = \frac{4q}{q} = 10, d$$

$$1, 11, d, 12, 13, d, 14, 15, d, 16, 17, d, 18, 19, d, 20, 21, d, 22, 23, d, 24, 25, d, 26, 27, d, 28, 29, d, 30, 31, d, 32, 33, d, 34, 35, d, 36, 37, d, 38, 39, d, 40, 41, d, 42, 43, d, 44, 45, d, 46, 47, d, 48, 49, d, 50, 51, d, 52, 53, d, 54, 55, d, 56, 57, d, 58, 59, d, 60, 61, d, 62, 63, d, 64, 65, d, 66, 67, d, 68, 69, d, 70, 71, d, 72, 73, d, 74, 75, d, 76, 77, d, 78, 79, d, 80, 81, d, 82, 83, d, 84, 85, d, 86, 87, d, 88, 89, d, 90, 91, d, 92, 93, d, 94, 95, d, 96, 97, d, 98, 99, d, 100$$

$$\frac{1 - 4q}{q} = -10, d$$

$$10q + 1 = 10, d$$

$$10q + 1 = 10, d$$

$$10q - 1 = 10, d$$

$$d = \frac{-9d}{q} - (-10) = \frac{-9d}{q} + \frac{94}{q} = \frac{1}{q}$$

$$a_{101} = -10 + 100 \left(\frac{1}{q} \right) = 1$$

سوی

$$t_n = 121 \times q^n = 1 \Rightarrow q = \frac{1}{121}$$

$$a_r, a_v, a_q$$

$$a_1 + rd, a_1 + 2d, a_1 + 3d$$

$$(a_1 + nd)(a_1 + rd) = (a_1 + 2d)^2 \Rightarrow$$

$$rod^2 + raid = 0$$

$$(rd)(10d + a_1) = 0$$

$$x_1 r + 14d^2 + 10da_1 = a_1^2 + 10a_1d + 10d^2 \Rightarrow rod^2 = -raid \Rightarrow d = 0$$

(3) (4)

$$\cancel{rd} - \cancel{rd} - \cancel{rd} = \cancel{rd} + \cancel{rd} + \cancel{rd}$$

$$rd = 0 \quad 10d + a_1 = 0 \Rightarrow d = \frac{-a_1}{10}$$

$$\Rightarrow d = 0 \rightarrow$$

$$a_1, a_2, a_n$$

$$a_1 + d, a_1 + rd, a_1 + vd \quad (a_1 + d)(a_1 + vd) = (a_1 + rd)^2$$

$$a_1 + vd + a_1 + rd = a_1 + rd + a_1 + rd$$

$$-rd^2 + ra_1d = 0 \Rightarrow rd(a_1 - d) = 0$$

$$a_1 = d$$

$$rd \quad fd \quad 1d \Rightarrow q = \frac{rd}{fd} = r$$

$$t_{10} = \cancel{t_1} \dots \cancel{t_9} t_1 q^9 = r^9 \times \frac{1}{\epsilon} = r^9 = 128$$

$$r(a, q), ra, q^r, a, q^r$$

$$ra + q^r + a, q^r = \epsilon q, q^r \Rightarrow r + q^r - \epsilon q = 0 \Rightarrow$$

$$q = 1, r$$

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$$r, \frac{v}{\epsilon}, \dots \quad d = \frac{v}{\epsilon} - r = -\frac{1}{r}$$

$$a_n = r + (n-1) \times -\frac{1}{\epsilon} = \frac{r}{\epsilon} - \frac{1}{\epsilon} n$$

$$a_\epsilon = \frac{r}{\epsilon} - 1 = \frac{a}{\epsilon}$$

$$a_n = \frac{r}{\epsilon} - r = \frac{1}{\epsilon}$$

$$a_{1r} = -1$$

$$\frac{a}{r} + n \quad \frac{1}{\epsilon} + n \quad n-1$$

$$t_1 \quad t_2 \quad t_r$$

$$(n-1) \left(\frac{a}{\epsilon} + n \right) = \left(\frac{1}{\epsilon} + n \right)^2 \Rightarrow n^2 + \frac{n}{\epsilon} - \frac{r1}{\epsilon} = n^2 + \frac{n}{\epsilon} + \frac{1}{\epsilon^2}$$

$$\Rightarrow n = -\frac{r1}{\epsilon}$$

$$q = \frac{-\frac{r1}{\epsilon}}{-\frac{r1}{\epsilon} + \frac{1}{\epsilon}} = \frac{-\frac{r1}{\epsilon}}{\frac{-r1 + 1}{\epsilon}} = \frac{-r1}{-r1 + 1} = \frac{r1}{r1 - 1} \rightarrow \frac{a}{r}$$

$$a_1 \quad t_1 + d \quad t_1 + 9d$$

$$a_1 \rightarrow t_1 \quad t_r \quad t_{10}$$

$$a_1 + a_r + a_v = v_r$$

(10)

$$a_1 + a_1 q^r + a_1 q^9 = v_r$$

$$t_1 + t_r + t_{10} = v_r \Rightarrow r a_1 + 10d = v_r$$

$$t_1 + t_r + t_{10} = v_r \Rightarrow r a_1 + 10d = v_r$$

$$a_1 q^9 + a_1 q^r = v_r \Rightarrow a_1 (q^9 + q^r) = v_r$$

$$(q^9 - 1) = 0 \Rightarrow q^9 = 1$$

$$q^r = 1 \Rightarrow q = 1$$

$$a_1 + a_1 r + a_1 \times 1 = v_r \Rightarrow a_1 (1 + r + 1) = v_r$$

$$r a_1 + 10d = v_r \Rightarrow r a_1 + 10d = v_r$$

$$a_1 q^9 + a_1 q^r = v_r$$

$$a_1 = a_1$$

$$a_1 (1 + d = a_1 q^r)$$

$$a_1 + 9d = a_1 q^9$$

$$10a_1 = 9a_1 q^9 - a_1 q^9 \Rightarrow q^9 - 9q^9 + 10 = 0$$

$$q^9 = 1 \Rightarrow q = 1 \Rightarrow a_1 + a_1 + a_1 = v_r \Rightarrow$$

$$q^r = 1 \Rightarrow q = 1$$

$$a_1, r a_1, 9 a_1$$

$$\Rightarrow r a_1 + 10d = v_r \Rightarrow$$

$$a_1 + r a_1 + 9 a_1 = v_r \Rightarrow v_r a_1 = v_r \Rightarrow$$

$$d = 0$$

$$1, 1, 9$$

$$a_1 = 1$$

$$a_1 + a_1 + d + a_1 + 9d = v_r \Rightarrow 10d = v_r \Rightarrow d = v_r$$

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