

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

$$x^r = 1 \Rightarrow x = 1$$

①

$$\frac{x}{q} + x + xq = x \left(\frac{1}{q} + 1 + q \right) = 1$$

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

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

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

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

$$\in \omega \Rightarrow \text{و}$$

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

$$(x^r - 1)(x^r + 1) = (1x)^r \Rightarrow x^r - 1 + x^r = 1x^r$$

$$x^r - 1x^r - 1 = 0 \Rightarrow (x^r - 1)(x^r + 1) = 0$$

$$x^r = 1 \Rightarrow x = \pm 1$$

$$x = 1$$

$$\text{و}$$

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

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

$$x^r - 1 =$$

$$x = -1 \rightarrow x^r + 1 = 1 + 1 = 1 \quad 1x = -1 \quad x^r - 1 = 1 - 1 = 0$$

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

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

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

$$1 + q + q^2 + q^3 + q^4 = \frac{121}{11} \quad (P)$$

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

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

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

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

$$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, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000$$

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

$$1, -1, 2, -2, 3, -3, 4, -4, 5, -5, 6, -6, 7, -7, 8, -8, 9, -9, 10, -10, 11, -11, 12, -12, 13, -13, 14, -14, 15, -15, 16, -16, 17, -17, 18, -18, 19, -19, 20, -20, 21, -21, 22, -22, 23, -23, 24, -24, 25, -25, 26, -26, 27, -27, 28, -28, 29, -29, 30, -30, 31, -31, 32, -32, 33, -33, 34, -34, 35, -35, 36, -36, 37, -37, 38, -38, 39, -39, 40, -40, 41, -41, 42, -42, 43, -43, 44, -44, 45, -45, 46, -46, 47, -47, 48, -48, 49, -49, 50, -50, 51, -51, 52, -52, 53, -53, 54, -54, 55, -55, 56, -56, 57, -57, 58, -58, 59, -59, 60, -60, 61, -61, 62, -62, 63, -63, 64, -64, 65, -65, 66, -66, 67, -67, 68, -68, 69, -69, 70, -70, 71, -71, 72, -72, 73, -73, 74, -74, 75, -75, 76, -76, 77, -77, 78, -78, 79, -79, 80, -80, 81, -81, 82, -82, 83, -83, 84, -84, 85, -85, 86, -86, 87, -87, 88, -88, 89, -89, 90, -90, 91, -91, 92, -92, 93, -93, 94, -94, 95, -95, 96, -96, 97, -97, 98, -98, 99, -99, 100, -100, 101, -101, 102, -102, 103, -103, 104, -104, 105, -105, 106, -106, 107, -107, 108, -108, 109, -109, 110, -110, 111, 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~~$$rd = r_1 d = r_2 d = \dots = r_n d$$~~

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

$$\Rightarrow d = 0$$

$$a_1, a_2, a_3$$

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

$$a_1^2 + vd^2 + 1da_1 = a_1^2 + 2rd^2 + 2a_1d$$

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

$$a_1 = d$$

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

~~$$t_{10} = \dots$$~~

$$t_1 q^9 = r^9 \times \frac{1}{\epsilon} = r^9 = 121$$

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

$$r \frac{a}{q^r} + a \frac{q^r}{q} = \epsilon q \frac{q^r}{q} \Rightarrow r + q^r - \epsilon q = 0 \Rightarrow$$

$$q = 1, r$$

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

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

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

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

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

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

$$t_1 \quad t_r \quad t_r$$

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

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

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

$$a_1 \quad a_1 \quad a_1$$

$$t_1 + d \quad t_1 + qd$$

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

$$a_1 + a_r + a_v = v_r \quad (10)$$

$$a_1 + a_1 q^r + a_1 q^4 = v_r$$

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

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

$$a_1 q^4 + a_1 q^r + a_1 q^4 = v_r$$

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

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

$$a_1 + a_1 r + a_1 \times 1 = v_r \Rightarrow a_1 = \frac{v_r}{r+2}$$

$$r a_1 + 10d = v_r \Rightarrow r \left(\frac{v_r}{r+2} \right) + 10d = v_r \Rightarrow d = \frac{v_r}{10}$$

$$a_1 = \frac{v_r}{r+2}$$

$$a_1 = a_1$$

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

$$a_1 + qd = a_1 q^4$$

$$\frac{1}{q} = \frac{a_1 q^r - a_1 q^4}{a_1} \Rightarrow q^4 - q q^r + 1 = 0$$

$$q^r = 1 \Rightarrow q = 1 \Rightarrow a_1 + a_1 + a_1 = v_r \Rightarrow a_1 = \frac{v_r}{3}$$

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

$$a_1, r a_1, q a_1$$

$$\Rightarrow r a_1 + 10d = v_r \Rightarrow d = \frac{v_r}{10}$$

$$a_1 + r a_1 + q a_1 = v_r \Rightarrow a_1 = \frac{v_r}{r+q+1}$$

$$a_1 = 1$$

$$1, 1, q$$

$$a_1 + a_1 + d + a_1 + qd = v_r \Rightarrow 10d = v_r \Rightarrow d = \frac{v_r}{10}$$

Scanned