

$$n^2$$

$$n^2$$

$$n^2$$

$$n^2$$

$$q_n = n^2 + \frac{n(n+1)}{2}$$

$$q_{10} = 10^2 + \frac{10 \times 11}{2} = 155$$

$$\frac{n(n-1)}{2}$$

$$\frac{n(n-1)}{2}$$

$$\frac{n(n-1)}{2}$$

$$\frac{n(n-1)}{2}$$

$$a_n = \frac{n(n-1)}{2}$$

$$n(n-1) = 110 \rightarrow n = 11$$

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

$$t_n = an^2 + bn + c \rightarrow \begin{cases} n=1 \rightarrow \frac{1}{r} + b = 0 \\ n=2 \rightarrow \frac{4}{r} + 2b = 1 \end{cases} \Rightarrow b = -\frac{1}{r}$$

$$n^2$$

$$n^2$$

$$n^2$$

$$q_n = n^2 - 1 \rightarrow q_{11} = 11^2 - 1 = 120$$

$$q_n = n^2 + 1 \rightarrow q_{11} = 11^2 + 1 = 122$$

$$q_n = 11n - 3 \rightarrow a_{11} = 11 \times 11 - 3 = 118$$

$$a_{max} = a_4 = \frac{1}{4}$$

$$a_{min} = a_1 = -\frac{1}{1} = -1$$

$$\left. \begin{array}{l} a_{max} = a_4 = \frac{1}{4} \\ a_{min} = a_1 = -1 \end{array} \right\} \text{اختلاف: } \frac{1}{4} - (-1) = \frac{5}{4}$$

$$b_n = (-3)^n \rightarrow 7n \rightarrow b^* = -27 - 21 = -48$$

$$a_n = -2n + 22$$

$$-48 = -2n + 22 \rightarrow 2n = 70 \rightarrow n = 35 \rightarrow k = 35$$

$$a_{10} - a_7 = 12 \rightarrow 3d = 12 \rightarrow d = 4$$

المسألة

$$a_4 - a_1 = 3d = 3 \times 4 = 12$$

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$$\left. \begin{array}{l} a_1 = 7 \\ a_8 = 14 \end{array} \right\} a_8 - a_1 = 7d = 7 \rightarrow d = 1$$

$$a_r = a + d$$

$$7 = a_1 + 1 \rightarrow a_1 = 6$$

$$a_r = 11$$

$$b_n = 11$$

$$b_r = 11$$

$$d = 1 \rightarrow b = 11$$

$$b_n = 11n - 10$$

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$$t_n = \frac{1}{2}n^2 + \frac{1}{2}n + \frac{1}{2}n = \frac{1}{2}n^2 + n = \frac{1}{2}n(n+2)$$

$$n \leq 4 \rightarrow \frac{1}{2}n(n+2) = 10 \rightarrow n = 4$$

$$t_n = \frac{1}{2}n^2 + n < \frac{1}{2}n^2 + 2n \rightarrow 1n - 1 < 2n + 1$$

$$2n < 12 \rightarrow n < 6, d$$

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$$t_n = 4, 9, 16, 25$$

$$t_n = An^2 + Bn \rightarrow A = -\frac{1}{2}$$

$$c = 0$$

$$t_1 = -\frac{1}{2} + B = 4 \rightarrow B = \frac{9}{2}$$

$$t_n = -\frac{1}{2}n^2 + \frac{9}{2}n$$

$$-1 = 2a \rightarrow a = -\frac{1}{2}$$

$$4A + 2B = 12 \rightarrow 4 \times -\frac{1}{2} + 2 \times \frac{9}{2} = -2 + 9 = 7$$

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$$t_n = -4, -1, 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 50, 53, 56, 59, 62, 65, 68, 71, 74, 77, 80, 83, 86, 89, 92, 95, 98, 101, 104, 107, 110, 113, 116, 119, 122, 125, 128, 131, 134, 137, 140, 143, 146, 149, 152, 155, 158, 161, 164, 167, 170, 173, 176, 179, 182, 185, 188, 191, 194, 197, 200, 203, 206, 209, 212, 215, 218, 221, 224, 227, 230, 233, 236, 239, 242, 245, 248, 251, 254, 257, 260, 263, 266, 269, 272, 275, 278, 281, 284, 287, 290, 293, 296, 299, 302, 305, 308, 311, 314, 317, 320, 323, 326, 329, 332, 335, 338, 341, 344, 347, 350, 353, 356, 359, 362, 365, 368, 371, 374, 377, 380, 383, 386, 389, 392, 395, 398, 401, 404, 407, 410, 413, 416, 419, 422, 425, 428, 431, 434, 437, 440, 443, 446, 449, 452, 455, 458, 461, 464, 467, 470, 473, 476, 479, 482, 485, 488, 491, 494, 497, 500, 503, 506, 509, 512, 515, 518, 521, 524, 527, 530, 533, 536, 539, 542, 545, 548, 551, 554, 557, 560, 563, 566, 569, 572, 575, 578, 581, 584, 587, 590, 593, 596, 599, 602, 605, 608, 611, 614, 617, 620, 623, 626, 629, 632, 635, 638, 641, 644, 647, 650, 653, 656, 659, 662, 665, 668, 671, 674, 677, 680, 683, 686, 689, 692, 695, 698, 701, 704, 707, 710, 713, 716, 719, 722, 725, 728, 731, 734, 737, 740, 743, 746, 749, 752, 755, 758, 761, 764, 767, 770, 773, 776, 779, 782, 785, 788, 791, 794, 797, 800, 803, 806, 809, 812, 815, 818, 821, 824, 827, 830, 833, 836, 839, 842, 845, 848, 851, 854, 857, 860, 863, 866, 869, 872, 875, 878, 881, 884, 887, 890, 893, 896, 899, 902, 905, 908, 911, 914, 917, 920, 923, 926, 929, 932, 935, 938, 941, 944, 947, 950, 953, 956, 959, 962, 965, 968, 971, 974, 977, 980, 983, 986, 989, 992, 995, 998, 1001, 1004, 1007, 1010, 1013, 1016, 1019, 1022, 1025, 1028, 1031, 1034, 1037, 1040, 1043, 1046, 1049, 1052, 1055, 1058, 1061, 1064, 1067, 1070, 1073, 1076, 1079, 1082, 1085, 1088, 1091, 1094, 1097, 1100, 1103, 1106, 1109, 1112, 1115, 1118, 1121, 1124, 1127, 1130, 1133, 1136, 1139, 1142, 1145, 1148, 1151, 1154, 1157, 1160, 1163, 1166, 1169, 1172, 1175, 1178, 1181, 1184, 1187, 1190, 1193, 1196, 1199, 1202, 1205, 1208, 1211, 1214, 1217, 1220, 1223, 1226, 1229, 1232, 1235, 1238, 1241, 1244, 1247, 1250, 1253, 1256, 1259, 1262, 1265, 1268, 1271, 1274, 1277, 1280, 1283, 1286, 1289, 1292, 1295, 1298, 1301, 1304, 1307, 1310, 1313, 1316, 1319, 1322, 1325, 1328, 1331, 1334, 1337, 1340, 1343, 1346, 1349, 1352, 1355, 1358, 1361, 1364, 1367, 1370, 1373, 1376, 1379, 1382, 1385, 1388, 1391, 1394, 1397, 1400, 1403, 1406, 1409, 1412, 1415, 1418, 1421, 1424, 1427, 1430, 1433, 1436, 1439, 1442, 1445, 1448, 1451, 1454, 1457, 1460, 1463, 1466, 1469, 1472, 1475, 1478, 1481, 1484, 1487, 1490, 1493, 1496, 1499, 1502, 1505, 1508, 1511, 1514, 1517, 1520, 1523, 1526, 1529, 1532, 1535, 1538, 1541, 1544, 1547, 1550, 1553, 1556, 1559, 1562, 1565, 1568, 1571, 1574, 1577, 1580, 1583, 1586, 1589, 1592, 1595, 1598, 1601, 1604, 1607, 1610, 1613, 1616, 1619, 1622, 1625, 1628, 1631, 1634, 1637, 1640, 1643, 1646, 1649, 1652, 1655, 1658, 1661, 1664, 1667, 1670, 1673, 1676, 1679, 1682, 1685, 1688, 1691, 1694, 1697, 1700, 1703, 1706, 1709, 1712, 1715, 1718, 1721, 1724, 1727, 1730, 1733, 1736, 1739, 1742, 1745, 1748, 1751, 1754, 1757, 1760, 1763, 1766, 1769, 1772, 1775, 1778, 1781, 1784, 1787, 1790, 1793, 1796, 1799, 1802, 1805, 1808, 1811, 1814, 1817, 1820, 1823, 1826, 1829, 1832, 1835, 1838, 1841, 1844, 1847, 1850, 1853, 1856, 1859, 1862, 1865, 1868, 1871, 1874, 1877, 1880, 1883, 1886, 1889, 1892, 1895, 1898, 1901, 1904, 1907, 1910, 1913, 1916, 1919, 1922, 1925, 1928, 1931, 1934, 1937, 1940, 1943, 1946, 1949, 1952, 1955, 1958, 1961, 1964, 1967, 1970, 1973, 1976, 1979, 1982, 1985, 1988, 1991, 1994, 1997, 2000, 2003, 2006, 2009, 2012, 2015, 2018, 2021, 2024, 2027, 2030, 2033, 2036, 2039, 2042, 2045, 2048, 2051, 2054, 2057, 2060, 2063, 2066, 2069, 2072, 2075, 2078, 2081, 2084, 2087, 2090, 2093, 2096, 2099, 2102, 2105, 2108, 2111, 2114, 2117, 2120, 2123, 2126, 2129, 2132, 2135, 2138, 2141, 2144, 2147, 2150, 2153, 2156, 2159, 2162, 2165, 2168, 2171, 2174, 2177, 2180, 2183, 2186, 2189, 2192, 2195, 2198, 2201, 2204, 2207, 2210, 2213, 2216, 2219, 2222, 2225, 2228, 2231, 2234, 2237, 2240, 2243, 2246, 2249, 2252, 2255, 2258, 2261, 2264, 2267, 2270, 2273, 2276, 2279, 2282, 2285, 2288, 2291, 2294, 2297, 2300, 2303, 2306, 2309, 2312, 2315, 2318, 2321, 2324, 2327, 2330, 2333, 2336, 2339, 2342, 2345, 2348, 2351, 2354, 2357, 2360, 2363, 2366, 2369, 2372, 2375, 2378, 2381, 2384, 2387, 2390, 2393, 2396, 2399, 2402, 2405, 2408, 2411, 2414, 2417, 2420, 2423, 2426, 2429, 2432, 2435, 2438, 2441, 2444, 2447, 2450, 2453, 2456, 2459, 2462, 2465, 2468, 2471, 2474, 2477, 2480, 2483, 2486, 2489, 2492, 2495, 2498, 2501, 2504, 2507, 2510, 2513, 2516, 2519, 2522, 2525, 2528, 2531, 2534, 2537, 2540, 2543, 2546, 2549, 2552, 2555, 2558, 2561, 2564, 2567, 2570, 2573, 2576, 2579, 2582, 2585, 2588, 2591, 2594, 2597, 2600, 2603, 2606, 2609, 2612, 2615, 2618, 2621, 2624, 2627, 2630, 2633, 2636, 2639, 2642, 2645, 2648, 2651, 2654, 2657, 2660, 2663, 2666, 2669, 2672, 2675, 2678, 2681, 2684, 2687, 2690, 2693, 2696, 2699, 2702, 2705, 2708, 2711, 2714, 2717, 2720, 2723, 2726, 2729, 2732, 2735, 2738, 2741, 2744, 2747, 2750, 2753, 2756, 2759, 2762, 2765, 2768, 2771, 2774, 2777, 2780, 2783, 2786, 2789, 2792, 2795, 2798, 2801, 2804, 2807, 2810, 2813, 2816, 2819, 2822, 2825, 2828, 2831, 2834, 2837, 2840, 2843, 2846, 2849, 2852, 2855, 2858, 2861, 2864, 2867, 2870, 2873, 2876, 2879, 2882, 2885, 2888, 2891, 2894, 2897, 2900, 2903, 2906, 2909, 2912, 2915, 2918, 2921, 2924, 2927, 2930, 2933, 2936, 2939, 2942, 2945, 2948, 2951, 2954, 2957, 2960, 2963, 2966, 2969, 2972, 2975, 2978, 2981, 2984, 2987, 2990, 2993, 2996, 2999, 3002, 3005, 3008, 3011, 3014, 3017, 3020, 3023, 3026, 3029, 3032, 3035, 3038, 3041, 3044, 3047, 3050, 3053, 3056, 3059, 3062, 3065, 3068, 3071, 3074, 3077, 3080, 3083, 3086, 3089, 3092, 3095, 3098, 3101, 3104, 3107, 3110, 3113, 3116, 3119, 3122, 3125, 3128, 3131, 3134, 3137, 3140, 3143, 3146, 3149, 3152, 3155, 3158, 3161, 3164, 3167, 3170, 3173, 3176, 3179, 3182, 3185, 3188, 3191, 3194, 3197, 3200, 3203, 3206, 3209, 3212, 3215, 3218, 3221, 3224, 3227, 3230, 3233, 3236, 3239, 3242, 3245, 3248, 3251, 3254, 3257, 3260, 3263, 3266, 3269, 3272, 3275, 3278, 3281, 3284, 3287, 3290, 3293, 3296, 3299, 3302, 3305, 3308, 3311, 3314, 3317, 3320, 3323, 3326, 3329, 3332, 3335, 3338, 3341, 3344, 3347, 3350, 3353, 3356, 3359, 3362, 3365, 3368, 3371, 3374, 3377, 3380, 3383, 3386, 3389, 3392, 3395, 3398, 3401, 3404, 3407, 3410, 3413, 3416, 3419, 3422, 3425, 3428, 3431, 3434, 3437, 3440, 3443, 3446, 3449, 3452, 3455, 3458, 3461, 3464, 3467, 3470, 3473, 3476, 3479, 3482, 3485, 3488, 3491, 3494, 3497, 3500, 3503, 3506, 3509, 3512, 3515, 3518, 3521, 3524, 3527, 3530, 3533, 3536, 3539, 3542, 3545, 3548, 3551, 3554, 3557, 3560, 3563, 3566, 3569, 3572, 3575, 3578, 3581, 3584, 3587, 3590, 3593, 3596, 3599, 3602, 3605, 3608, 3611, 3614, 3617, 3620, 3623, 3626, 3629, 3632, 3635, 3638, 3641, 3644, 3647, 3650, 3653, 3656, 3659, 3662, 3665, 3668, 3671, 3674, 3677, 3680, 3683, 3686, 3689, 3692, 3695, 3698, 3701, 3704, 3707, 3710, 3713, 3716, 3719, 3722, 3725, 3728, 3731, 3734, 3737, 3740, 3743, 3746, 3749, 3752, 3755, 3758, 3761, 3764, 3767, 3770, 3773, 3776, 3779, 3782, 3785, 3788, 3791, 3794, 3797, 3800, 3803, 3806, 3809, 3812, 3815, 3818, 3821, 3824, 3827, 3830, 3833, 3836, 3839, 3842, 3845, 3848, 3851, 3854, 3857, 3860, 3863, 3866, 3869, 3872, 3875, 3878, 3881, 3884, 3887, 3890, 3893, 3896, 3899, 3902, 3905, 3908, 3911, 3914, 3917, 3920, 3923, 3926, 3929, 3932, 3935, 3938, 3941, 3944, 3947, 3950, 3953, 3956, 3959, 3962, 3965, 3968, 3971, 3974, 3977, 3980, 3983, 3986, 3989, 3992, 3995, 3998, 4001, 4004, 4007, 4010, 4013, 4016, 4019, 4022, 4025, 4028, 4031, 4034, 4037, 4040, 4043, 4046, 4049, 4052, 4055, 4058, 4061, 4064, 4067, 4070, 4073, 4076, 4079, 4082, 4085, 4088, 4091, 4094, 4097, 4100, 4103, 4106, 4109, 4112, 4115, 4118, 4121, 4124, 4127, 4130, 4133, 4136, 4139, 4142, 4145, 4148, 4151, 4154, 4157, 4160, 4163, 4166, 4169, 4172, 4175, 4178, 4181, 4184, 4187, 4190, 4193, 4196, 4199, 4202, 4205, 4208, 4211, 4214, 4217, 4220, 4223, 4226, 4229, 4232, 4235, 4238, 4241, 4244, 4247, 4250, 4253, 4256, 4259, 4262, 4265, 4268, 4271, 4274, 4277, 4280, 4283, 4286, 4289, 4292, 4295, 4298, 4301, 4304, 4307, 4310, 4313, 4316, 4319, 4322, 4325, 4328, 4331, 4334, 4337, 4340, 4343, 4346, 4349, 4352, 4355, 4358, 4361, 4364, 4367, 4370, 4373, 4376, 4379, 4382, 4385, 4388, 4391, 4394, 4397, 4400, 4403, 4406, 4409, 4412, 4415, 4418, 4421, 4424, 4427, 4430, 4433, 4436, 4439, 4442, 4445, 4448, 4451, 4454, 4457, 4460, 4463, 4466, 4469, 4472, 4475, 4478, 4481, 4484, 4487, 4490, 4493, 4496, 4499, 4502, 4505, 4508, 4511, 4514, 4517, 4520, 4523, 4526, 4529, 4532, 4535, 4538, 4541, 4544, 4547, 4550, 4553, 4556, 4559, 4562, 4565, 4568, 4571, 4574, 4577, 4580, 4583, 4586, 4589, 4592, 4595, 4598, 4601, 4604, 4607, 4610, 4613, 4616, 4619, 4622, 4625, 4628, 4631, 4634, 4637, 4640, 4643, 4646, 4649, 4652, 4655, 4658, 4661, 4664, 4667, 4670, 4673, 4676, 4679, 4682, 4685, 4688, 4691, 4694, 4697, 4700, 4703, 4706, 4709, 4712, 4715, 4718, 4721, 4724, 4727, 4730, 4733, 4736, 4739, 4742, 4745, 4748, 4751, 4754, 4757, 4760, 4763, 4766, 4769, 4772, 4775, 4778, 4781, 4784, 4787, 4790, 4793, 4796, 4799, 4802, 4805, 4808, 4811, 4814, 4817, 4820, 4823, 4826, 4829, 4832, 4835, 4838, 4841, 4844, 4847, 4850, 4853, 4856, 4859, 4862, 4865, 4868, 4871, 4874, 4877, 4880, 4883, 4886, 4889, 4892, 4895, 4898, 4901, 4904, 4907, 4910, 4913, 4916, 4919, 4922, 4925, 4928, 4931, 4934, 4937, 4940, 4943, 4946, 4949, 4952, 4955, 4958, 4961, 4964, 4967, 4970, 4973, 4976, 4979, 4982, 4985, 4988, 4991, 4994, 4997, 5000, 5003, 5006, 5009, 5012, 5015, 5018, 5021, 5024, 5027, 5030, 5033, 5036, 5039, 5042, 5045, 5048, 5051, 5054, 5057, 5060, 5063, 5066, 5069, 5072, 5075, 5078, 5081, 5084, 5087, 5090, 5093, 5096, 5099, 5102, 5105, 5108, 5111, 5114, 5117, 5120, 5123, 5126, 5129, 5132, 5135, 5138, 5141, 5144, 5147, 5150, 5153, 5156, 5159, 5162, 5165, 5168, 5171, 5174, 5177, 5180, 5183, 5186, 5189, 5192, 5195, 5198, 5201, 5204, 5207, 5210, 5213, 5216, 5219, 5222, 5225, 5228, 5231, 5234, 5237, 5240, 5243, 5246, 5249, 5252, 5255, 5258, 5261, 5264, 5267, 5270, 5273, 5276, 5279, 5282, 5285, 5288, 5291, 5294, 5297, 5300, 5303, 5306, 5309, 5312, 5315, 5318, 5321, 5324, 5327, 5330, 5333, 5336, 5339, 5342, 5345, 5348, 5351, 5354, 5357, 5360, 5363, 5366, 5369, 5372, 5375, 5378, 5381, 5384, 5387, 5390, 5393, 5396, 5399, 5402, 5405, 5408, 5411, 5414, 5417, 5420, 5423, 5426, 5429, 5432, 5435, 5438, 5441, 5444, 5447, 5450, 5453, 5456, 5459, 5462, 5465, 5468, 5471, 5474, 5477, 5480, 5483, 5486, 5489, 5492, 5495, 5498, 5501, 5504, 5507, 5510, 5513, 5516, 5519, 5522, 5525, 5528, 5531, 5534, 5537, 5540, 5543, 5546, 5549, 5552, 5555, 5558, 5561$$