

Modulo Page 35

A) $a_n = 5n$

$$a_1 = 5 \times 1 \\ = 5$$

$$a_2 = 5 \times 2 \\ = 10$$

$$a_3 = 5 \times 3 \\ = 15$$

$$a_4 = 5 \times 4 \\ = 20$$

$$a_5 = 5 \times 5 \\ = 25$$

B) $a_n = (-1)^2 (2n)$

$$a_1 = (-1)^2 (2 \times 2)$$

$$a_1 = 2$$

$$a_2 = (-1)^2 (2 \times 2)$$

$$a_2 = 4$$

$$a_3 = (-1)^2 (2 \times 3)$$

$$a_3 = 6$$

$$a_4 = (-1)^2 (2 \times 4)$$

$$a_4 = 8$$

$$a_5 = (-1)^2 (2 \times 5)$$

$$a_5 = 10$$

$$a_1 = 2^1 + 1^5$$

$$a_1 = 2^1 + 1^5$$

$$a_1 = 2 + 1$$

$$a_1 = 3$$

$$a_2 = 2^2 + 3^3$$

$$a_2 = 4 + 27$$

$$a_2 = 31$$

$$a_3 = 2^3 + 4^3$$

$$a_3 = 8 + 64$$

$$a_3 = 72$$

$$d) a_n = \frac{3^n}{1+2^n}$$

$$a_1 = \frac{3^1}{1+2^1} = \frac{3}{3} = 1$$

$$\frac{3}{1+2} = \frac{3}{3} = 1$$

$$\frac{3}{3} = 1$$

$$1$$

$$a_4 = 2^4 + 4^3$$

$$a_4 = 16 + 64$$

$$a_4 = 80$$

$$a_5 = 2^5 + 5^3$$

$$a_5 = 32 + 125$$

$$a_5 = 157$$

$$a_2 = \frac{3 \times 2}{1 + 2 \times 2} = \frac{6}{1 + 4} = \frac{6}{5}$$

$$a_3 = \frac{3 \times 3}{1 + 2 \times 3} = \frac{9}{1 + 6} = \frac{9}{7}$$

$$a_4 = \frac{3 \times 4}{1 + 2 \times 4} = \frac{3 \times 4}{1 + 8} = \frac{3 \times 4}{9} = \frac{4}{3}$$

$$a_5 = \frac{3 \times 5}{1 + 2 \times 5} = \frac{15}{1 + 10} = \frac{15}{11}$$

$$E) a_n = (-1)^n (5n - 3)$$

$$a_1 = -(-1)^1 (5 \times 1 - 3)$$

$$= -(-1) \cdot 2$$

$$= 1 \cdot 2$$

$$= 2$$

$$a_2 = -(-1)^2 (5 \times 2 - 3) = -1 \cdot 7$$

$$= -1 (5 \times 2 - 3) = -7$$

$$= -1 (10 - 3)$$

$$a_3 = -(-1)^3 (5 \times 3 - 3)$$

$$= -(-1) (5 \times 3 - 3)$$

$$= -(-1) (15 - 3)$$

$$= 1 \cdot 12$$

$$= 12$$

$$a_4 = -(-1)^4 (5 \times 4 - 3)$$

$$= -1 (5 \times 4 - 3)$$

$$= -1 (20 - 3)$$

$$= -1 \cdot 17$$

$$= -17$$

$$a_5 = -(-1)^5 (5 \times 5 - 3)$$

$$= -1 (5 \times 5 - 3)$$

$$= -1 (25 - 3)$$

$$= -1 \cdot 22$$

$$= -22$$

$$f) a_n = n^2 + n^2 + 2n + 1$$

$$a_1 = 1^2 + 1^2 + 2 \times 1 + 1$$

$$= 1 + 1 + 2 + 1$$

$$= 1 + 1 + 2 + 1$$

$$= 5$$

$$a_2 = 2^2 + 2^2 + 2 \times 2 + 1$$

$$= 2^2 + 4 + 1$$

$$= 8 + 4 + 1$$

$$= 13$$

$$a_3 = 3^2 + 3^2 + 2 \times 3 + 1$$

$$= 27 + 9 + 6 + 1$$

$$= 43$$

$$a_4 = 4^2 + 4^2 + 2 \times 4 + 1$$

$$= 256 + 16 + 8 + 1$$

$$= 281$$

$$\begin{aligned} a_5 &= 5^5 + 5^2 + 2 + 8 + 1 \\ &= 3125 + 25 + 10 + 1 \\ &= 3761 \end{aligned}$$

$$6) a_n = 4 + (-4)^n$$

$$\begin{aligned} a_1 &= 4 + (-4)^1 \\ &= 4 - 4 \\ &= 0 \end{aligned}$$

$$\begin{aligned} a_2 &= 4 + (-4)^2 \\ &= 4 + 16 \\ &= 20 \end{aligned}$$

$$\begin{aligned} a_3 &= 4 + (-4)^3 \\ &= 4 - 64 \\ &= -60 \end{aligned}$$

$$\begin{aligned} a_4 &= 4 + (-4)^4 \\ &= 4 + 256 \\ &= 260 \end{aligned}$$

$$\begin{aligned} a_5 &= 4 + (-4)^5 \\ &= 4 - 1024 \\ &= -1020 \end{aligned}$$

$$H) a_n = 7 + \frac{1}{3^n}$$

$$\begin{aligned} a_1 &= 7 + \frac{1}{3^1} \\ &= 7 + \frac{1}{3} \\ &= \frac{22}{3} \end{aligned}$$

$$\begin{aligned} a_2 &= 7 + \frac{1}{3^2} \\ &= 7 + \frac{1}{9} \\ &= \frac{64}{9} \end{aligned}$$

$$\begin{aligned}
 43 &= 7 \times 2^2 \\
 &= 7 \times 2^2 \\
 &= \frac{710}{27}
 \end{aligned}$$

$$\begin{aligned}
 44 &= 7 \times 2^2 \\
 &= 7 \times 2^2 \\
 &= \frac{568}{81}
 \end{aligned}$$

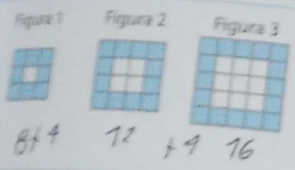
$$\begin{aligned}
 45 &= 7 \times 2^2 \\
 &= 7 \times 2^2 \\
 &= \frac{1702}{273}
 \end{aligned}$$

...descrito por Fibonacci como la sucesión de conejos. "Certo hombre tiene un par de conejos y desea saber a partir de este par en un año cuando, cada par de conejos necesita un mes para producir otro par"

...en forma recursiva como $c_n = 1, c_1 = 2$

$$c_1 = 2, c_2 = 1 + c_1 = 3$$

2) Observa la figura. ¿Qué expresión determina la cantidad de azulejos en la figura n?



$f_n = n^2$

$$4(1) + 4 = 8$$

$$4(2) + 4 = 12$$

$$4(3) + 4 = 16$$

3) Encuentra el término indicado en cada sucesión.

- a) $a_1 = 3, a_n = 3y a_{n-1} = -2 + a_{n-1}$
- b) $b_1 = 0,25, b_n = 0,25 y b_{n-1} = 4b_{n-1}$

- c) $c_1 = 2, c_n = 2y c_{n-1} = c_{n-1}$
- d) $a_1 = 0, a_n = 1 y a_n = 2a_{n-1} + a_{n-2}$

a) $a_1 = 3$
 $a_2 = 5$
 $a_3 = 7$
 $a_4 = 9$

c) $c_1 = 2$
 $c_2 = 2$
 $c_3 = 2$
 $c_4 = 2$

b) $b_2 = 0,25$
 $b_3 = 0,25 \cdot 4 = 1$
 $b_4 = 1 \cdot 4 = 4$
 $b_5 = 4 \cdot 4 = 16$
 $b_6 = 16 \cdot 4 = 64$
 $b_7 = 64 \cdot 4 = 256$

d) $a_3 = 2 \cdot 1 + 0 = 2$
 $a_4 = 2 \cdot 2 + 1 = 5$
 $a_5 = 2 \cdot 5 + 2 = 12$

4) Deducir la fórmula del término general de cada sucesión.

a) 7, 14, 21, 28

b) 2, 4, 6, 8

c) 3, 9, 15, 21, 27

Sucesiones aritméticas

Una sucesión aritmética es aquella en la que se suma al término anterior un número constante.

La cantidad constante que se suma a un término cualquiera de la sucesión se llama diferencia.

Por ejemplo, la sucesión -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, 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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, 553

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$6^3 = 1 \cdot 4 = 4$
 $6^4 = 4 \cdot 4 = 16$
 $6^5 = 16 \cdot 4 = 64$
 $6^6 = 64 \cdot 4 = 256$

4 Deducir la fórmula del término general de cada sucesión.

a) 7, 14, 21, 28, ...
 b) 4, 5, 6, 7, 8, ...
 c) $\frac{2}{2}, \frac{4}{5}, \frac{6}{8}, \frac{8}{11}, \dots$
 d) 3, 6, 12, 24, 48, ...
 e) 3, 8, 15, 24, 35, ...
 f) $\frac{1}{2}, \frac{4}{5}, \frac{9}{8}, \frac{16}{11}, \dots$

A) $7n + 7$

$7(1) + 7 = 14$
 $7(2) + 7 = 21$
 $7(3) + 7 = 28$

B) $1 + 3 = 4$

$(2) + 3 = 5$
 $(3) + 3 = 6$
 $(4) + 3 = 7$
 $(5) + 3 = 8$

1) $a_n = a_1 r^{n-1}$
 $a_1 = (3/2)^{1-1} = 3$
 $a_2 = (3/2)^{2-1} = 6$
 $a_3 = (3/2)^{3-1} = 12$
 $a_4 = (3/2)^{4-1} = 24$
 $a_5 = (3/2)^{5-1} = 48$

C) $2^2 - 13^2 - 14^2 - \dots$
 $15^2 - 16^2 - 17^2 - \dots$
 $1 \dots$
 $a_n = (n+1)^2 - 1$

Término general de una progresión aritmética:
 $a_n = a_1 + (n-1)d$
 En general, dada una progresión aritmética, se puede escribir:
 $a_1 = a_1$
 $a_2 = a_1 + d$
 $a_3 = a_1 + d + d = a_1 + 2d$
 $a_4 = a_1 + d + d + d = a_1 + 3d$
 \dots
 $a_n = a_1 + (n-1)d$

Ejemplos

1. Determinar cuáles de las siguientes sucesiones son aritméticas.

a. $a_1 - a_2 = 15 - 20 = -5$

La sucesión es una sucesión aritmética.

$a_2 - a_1 = 15 - 20 = -5$
 $a_3 - a_2 = 10 - 15 = -5$
 $a_4 - a_3 = 5 - 10 = -5$

La diferencia d de la sucesión es -5 .

b. 4, -5, 6, -7, ...

Esta sucesión no es una progresión aritmética porque los términos consecutivos no tienen la misma diferencia.

7 Determina cuánto dinero reciben cuatro hermanos, si cada uno, después del mayor, recibirá \$40,000 menos, y además el dinero que se distribuye es de \$2,000,000.

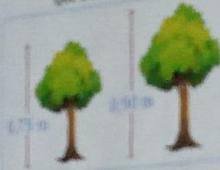
$H_1 = x$
 $H_2 = x - 40,000$
 $H_3 = x - 40,000 - 40,000 = x - 80,000$
 $H_4 = x - 80,000 - 40,000 = x - 120,000$
 $4x - 240,000 = 2,000,000$

$H_1 = 560,000$
 $H_2 = 560,000 - 40,000 = 520,000$
 $H_3 = 560,000 - 80,000 = 480,000$
 $H_4 = 560,000 - 120,000 = 440,000$
 $= 2,000,000$
 $4 \times 2,240,000$



Lee el enunciado, luego responde.

Un árbol crece cada año un 20%. Si al comenzar el año su altura era de 1,75 m, ¿cuánto que alcanzará el árbol al cabo de 10 años?



$$a_n = a_1 \cdot r^{n-1}$$

$$a_n = 1,75 \cdot (1,2)^{10-1}$$

$$a_n = 1,75 \cdot (1,2)^9$$

$$a_n = 3,87$$

Las puntas medias de los lados de un cuadrado con perímetro de 24 cm son los vértices de un segundo cuadrado, y los puntos medios de los lados del segundo cuadrado son los de un tercer cuadrado y así sucesivamente, hasta el décimo cuadrado. Halla el área del cuadrado.

6	3,055	$7(x) = 6-1 + 6$
4,21	0,745	$- 2 + 6$
6,98	0,526	14,9
2,11	0,371	
1,492	0,262	$\frac{6}{2} = 3,29$

a sumatoria y toma los valores...

Propiedades de la sumatoria
Dados las sucesiones $\{x\}$ y $\{y\}$

$$\sum (x + y) = \sum x + \sum y$$

Para verificar esta propiedad

$$\sum (x + y) = (x + y) + (x + y) + \dots$$

$$= \sum x + \sum y$$

Por tanto $\sum (x + y) = \sum x + \sum y$

$$\sum (x - y) = \sum x - \sum y$$

$$\sum kx = k \sum x$$

$$\sum c = n \cdot c$$