

Sum of a finite geometric progression

The sum of the first n terms of a geometric progression can be calculated using the formula

$$S_n = b_1 \cdot \frac{q^n - 1}{q - 1}.$$

№1. Find the sum of the first n terms of the geometric progression (b_n) with common ratio q , if:

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| 1. $b_1 = 0.6, q = 2, n = 5;$ | 3. $b_1 = -9, q = \sqrt{3}, n = 6;$ |
| 2. $b_1 = -4, q = -1, n = 10;$ | 4. $b_1 = 8, q = -\frac{1}{2}, n = 4.$ |

№2. Find the sum of the first six terms of the geometric progression (c_n) , if:

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| 1. $c_4 = 216, q = -3;$ | 2. $c_2 = 5\sqrt{5}, c_5 = 125\sqrt{5}, q > 0.$ |
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№3. Compute the sum

$$\left(2 + \frac{1}{2}\right)^2 + \left(4 + \frac{1}{4}\right)^2 + \cdots + \left(2^n + \frac{1}{2^n}\right)^2.$$

№4. Find the number of terms of a finite geometric progression with common ratio $q = -\frac{1}{2}$, first term $b_1 = 256$, and total sum $S_n = 170$.