

Geometric Series #2

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Evaluate each geometric series described.

1) $0.2 - 1 + 5 - 25 \dots, n = 7$

2) $-1 + 6 - 36 + 216 \dots, n = 7$

3) $a_1 = -0.5, a_n = 131072, r = -4$

4) $a_1 = 3, a_n = 49152, r = 4$

5) $a_1 = 128, a_n = \frac{1}{2}, r = \frac{1}{2}$

6) $a_1 = 2, a_8 = 4374, r = 3$

$$7) a_1 = 2, a_9 = 781250, r = 5$$

$$8) a_1 = 32, r = -\frac{1}{2}, n = 9$$

$$9) a_1 = -2.5, r = 2, n = 7$$

$$10) a_1 = 1, r = 2, n = 7$$

$$11) a_1 = 2, r = 4, n = 10$$

$$12) 3 + \frac{3}{2} + \frac{3}{4} + \frac{3}{8} \dots, n = 9$$

$$13) -5 - \frac{5}{3} - \frac{5}{9} - \frac{5}{27} \dots, n = 6$$

$$14) \sum_{m=1}^7 2^{m-1}$$

$$15) \sum_{i=1}^7 (-3)^{i-1}$$

$$16) \sum_{m=1}^8 64 \cdot \left(\frac{1}{2}\right)^{m-1}$$

$$17) \sum_{k=1}^8 (-2)^{k-1}$$

Determine the number of terms n in each geometric series.

$$18) a_1 = 3, r = -3, S_n = 1641$$

$$19) a_1 = 4, r = -2, S_n = -84$$

$$20) -3 - 15 - 75 - 375 \dots, S_n = -58593$$

$$21) -2 + 10 - 50 + 250 \dots, S_n = -1042$$

$$22) \sum_{i=1}^n \left(\frac{1}{4}\right)^{i-1} = \frac{85}{64}$$

$$23) \sum_{k=1}^n -3 \cdot (-4)^{k-1} = 153$$

$$24) \sum_{i=1}^n -2 \cdot 5^{i-1} = -39062$$