

$$1206. \text{ а) } \underbrace{2 + 5 + 11 + \dots + (3 \cdot 2^{n-1} - 1)}_{n \text{ сабирака}} = S_n$$

$$S_n = 2 + 5 + 11 + 23 + 47 + \dots + (3 \cdot 2^{n-1} - 1)$$

$$S_n = (3 - 1) + (6 - 1) + (12 - 1) + (24 - 1) + (48 - 1) + \dots + (3 \cdot 2^{n-1} - 1)$$

$$S_n = \underbrace{(-1 - 1 - 1 - \dots - 1)}_{n \text{ -јединица}} + \underbrace{(3 + 6 + 12 + 24 + 48 + \dots + 3 \cdot 2^{n-1})}_{q=2, a_1=3}$$

$$S_n = -n + 3 \cdot \frac{1-2^n}{1-2} \Rightarrow S_n = 3 \cdot 2^n - n - 3 = 3(2^n - 1) - n$$

$$1200. \text{ б) } S_n = \underbrace{1 - \frac{1}{3} + \frac{1}{3^2} - \dots + \frac{(-1)^{n-1}}{3^{n-1}}}_{n \text{ сабирака}} \Rightarrow q = -\frac{1}{3}, a_1 = 1$$

$$S_n = a_1 \frac{1-q^n}{1-q} = 1 \cdot \frac{1 - \left(-\frac{1}{3}\right)^n}{1 - \left(-\frac{1}{3}\right)} = \frac{1 - \left(-\frac{1}{3}\right)^n}{\frac{4}{3}} \Rightarrow S_n = \frac{3}{4} \cdot \left(1 - \left(-\frac{1}{3}\right)^n\right)$$