

Дано

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

$$b_4 = \frac{1}{54}$$

$$S_n = \frac{121}{162}$$

Найти n

решение

$$b_1 = \frac{1}{2}$$

$$S_n = \frac{1}{2} \frac{1 - (\frac{1}{3})^n}{1 - \frac{1}{3}} = \frac{121}{162}$$

$$(1 - (\frac{1}{3})^n) \cdot \frac{3}{4} = \frac{121}{162}$$

$$1 - (\frac{1}{3})^n = \frac{242}{243}$$

$$(\frac{1}{3})^n = \frac{1}{243}$$

$$n = 5$$

Ответ 5

Дано

$$|q| < 1$$

$$S_6 = 6$$

$$S_5 = \frac{93}{16}$$

Найти b_1, b_2, b_3

решение

$$S_6 = \frac{b_1}{1 - q} = 6$$

$$S_5 = \frac{b_1(1 - q^5)}{1 - q} = \frac{93}{16}$$

$$q = \frac{1}{2}$$

$$b_1 = 3$$

$$b_2 = \frac{3}{2}$$

$$b_3 = \frac{3}{4}$$

Ответ 3; 3/2; 3/4

Дано

$$|q| < 1$$

$$S = 16$$

$$b_1^2 + b_2^2 + \dots + b_n^2 + \dots = 153.6$$

Найти b_4, q

решение

$$b_1 = 16(1 - q)$$

$$b_1^* = b_1^2$$

$$q^* = q^2$$

$$\frac{b_1^2}{1 - q^2} = 153.6$$

$$\frac{[16(1 - q)]^2}{1 - q^2} = 153.6$$

$$\frac{256(1 - q)}{1 + q} = 153.6$$

$$q = \frac{1}{4}$$

$$b_1 = 12$$

$$b_4 = \frac{3}{16}$$

Ответ $q = \frac{1}{4}$ $b_4 = \frac{3}{16}$
