

Дано

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

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

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

Найти  $n$

решение

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

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

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

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

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

$$n = 5$$

**Ответ 5**

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

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