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סכום האיבר הראשון $\frac{a_1}{1-q}$

$$\frac{a_1}{1-(-q)} = \frac{a_1}{1+q}$$

כדי למצוא את האיבר הראשון $(-q)$ של סכום האיבר הראשון

$$\frac{a_1}{1-q} = \frac{2a_1}{1+q} \quad | : a_1$$

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

$$1+q = 2(1-q)$$

$$1+q = 2-2q$$

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

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$$a_1 = 14$$

$$S_{115} = \frac{a_2}{1-q^2} = \frac{a_1 \cdot q}{1-q^2} = \frac{14q}{1-q^2} = 24$$

$$14q = 24(1-q^2)$$

$$14q = 24 - 24q^2$$

$$24q^2 + 14q - 24 = 0$$

$$\left. \begin{array}{l} 14q = 24(1-q^2) \\ 14q = 24 - 24q^2 \\ 24q^2 + 14q - 24 = 0 \end{array} \right\} q_1 = 3/4$$

$$q_2 = -1 \frac{1}{3}$$

כדי למצוא את האיבר הראשון $-1 \leq q \leq 1$

$$S_{115,116} = \frac{a_1}{1-q^2} = \frac{14}{1-(\frac{3}{4})^2} = 32$$

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$$a_2 = a_1 q = \frac{6}{7}, \quad 1.4 = \frac{a_1}{1-(-q)} = \frac{a_1}{1+q}$$

$$a_1 = \frac{6}{7q}, \quad a_1 = 1.4(1+q)$$

$$\frac{6}{7q} = 1.4(1+q)$$

$$6 = 9.8q + 9.8q^2$$

$$9.8q^2 + 9.8q - 6 = 0$$

$$q_1 = -\frac{3}{7}$$

$$q_2 = \frac{3}{7}$$

$$-1 \leq q \leq 1$$

$$a_1 = \frac{6}{7q} = \frac{6}{7(\frac{3}{7})} = 2, \quad S = \frac{2}{1-\frac{3}{7}} = 3 \frac{1}{2}$$

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$$S = 25 \quad S_r = 15$$

$$q = \frac{\sqrt{a_{n+1}}}{\sqrt{a_n}} = \frac{\sqrt{a_1 q^n}}{\sqrt{a_1 q^{n-1}}} = \sqrt{\frac{a_1 q^n}{a_1 q^{n-1}}} = \sqrt{q}$$

כדי למצוא את האיבר הראשון q של סכום האיבר הראשון

$$\left. \begin{array}{l} 25 = \frac{a_1}{1-q} \\ 15 = \frac{\sqrt{a_1}}{1-\sqrt{q}} \end{array} \right\}$$

$$\left. \begin{array}{l} 25(1-q) = a_1 \\ 15(1-\sqrt{q}) = \sqrt{a_1} \end{array} \right\}$$

$$25(1-q) = [15(1-\sqrt{q})]^2$$

$$25 - 25q = 225(1 - 2\sqrt{q} + q)$$

$$25 - 25q = 225 - 450\sqrt{q} + 225q$$

$$250q - 450\sqrt{q} + 200 = 0$$

$$5q - 9\sqrt{q} + 4 = 0$$

$$\sqrt{q} = \frac{9 \pm 1}{10} = \left\{ \begin{array}{l} 1 \rightarrow q = 1 \quad -1 < q < 1 \\ \frac{4}{5} \rightarrow q = \frac{16}{25}, a_1 = 9 \end{array} \right.$$