

d) 22, 2,2, 0,22, ...

f) $-1\frac{3}{4}, \frac{1}{2}, -\frac{1}{7}, \dots$

[illegible]

[illegible]

$$b) \frac{2+\sqrt{3}}{2-\sqrt{3}}, \frac{2+\sqrt{3}}{2}, \frac{1}{4}$$

$$P = \frac{(2+\sqrt{3})(2+\sqrt{3})}{(2-\sqrt{3})(2+\sqrt{3})} \cdot \frac{1}{4} = \frac{(2+\sqrt{3})^2}{4} = L$$

$$a_{m-1} = a_m \cdot \frac{1}{q}, a_m = a_{m+1} \cdot \frac{1}{q}, a_{m+1} = a_{m+2} \cdot \frac{1}{q}, \dots$$

$$a_{n+1} = a_n \cdot q$$

$$q = \frac{a_{n+1}}{a_n} = \frac{a_n}{a_{n-1}} \Leftrightarrow a_n^2 = a_{n-1} \cdot a_{n+1}$$

$$a_n = \sqrt{a_{n-1} \cdot a_{n+1}} \vee a_n = -\sqrt{a_{n-1} \cdot a_{n+1}}$$

$$a_n = a_1 \cdot q^{n-1}$$

$$a_2 = a_1 \cdot q$$

$$a_3 = a_2 \cdot q = a_1 \cdot q \cdot q = a_1 \cdot q^2$$

$$a_4 = a_3 \cdot q = a_1 \cdot q^2 \cdot q = a_1 \cdot q^3$$

7.66. Wyznacz pierwszy wyraz i iloraz ciągu geometrycznego (a_n) , wiedząc, że:

- a) $a_5 - a_3 = 1680$ i $a_3 + a_4 = 560$
 b) $a_6 - a_4 = 432$ i $a_5 - a_4 = 108$
 c) $a_7 - a_3 = 120$ i $a_7 - a_5 = 96$
 d) $a_1 + a_5 = 1285$ i $a_2 \cdot a_4 = 6400$.

$$a_5 = a_1 \cdot q^4$$

$$a_6 = a_1 \cdot q^5$$

$$a_4 = a_1 \cdot q^3$$

$$\begin{cases} a_1 \cdot q^4 - a_1 \cdot q^2 = 1680 \\ a_1 \cdot q^3 + a_1 \cdot q^4 = 560 \end{cases}$$

$$\begin{cases} a_1 \cdot q^2 (q^2 - 1) = 1680 \\ a_1 \cdot q^3 (q + 1) = 560 \end{cases}$$

$$\frac{a_1 \cdot q^2 (q^2 - 1)}{a_1 \cdot q^3 (q + 1)} = \frac{1680}{560} = 3$$

$$q - 1 = 3$$

$$q = 4$$

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$$a_2 = a_3 \cdot q$$

$$a_5 = a_3 \cdot q^2$$

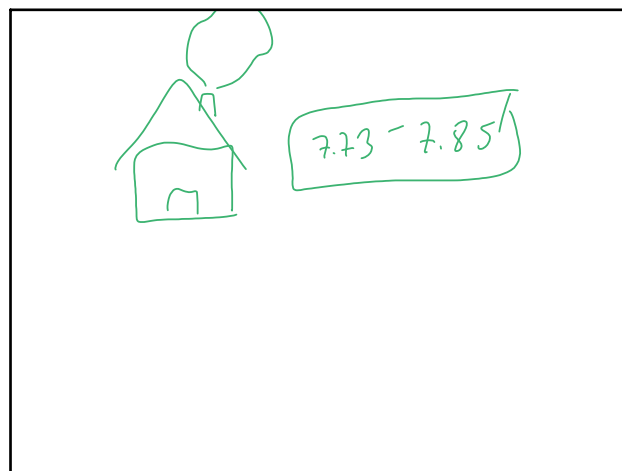
$$\begin{cases} a_1 \cdot q^4 - a_1 \cdot q^2 = 1680 \\ a_1 \cdot q^3 + a_1 \cdot q^4 = 560 \end{cases}$$

$$\frac{q^2 + 1}{q^2} = \frac{1680}{560} = \frac{3}{1} = 3$$

$$q^2 + 1 = 3q^2 \Rightarrow 2q^2 = 1 \Rightarrow q^2 = \frac{1}{2} \Rightarrow q = \pm \frac{1}{\sqrt{2}}$$

$$q^2 - 4 = 0$$

$$q = 2 \vee q = -2$$



7.89. Uzupełnij tabelkę brakującymi danymi dotyczącymi ciągu geometrycznego (a_n) .

a_1	q	a_n	n	S_n
9		144	5	
	2		9	4088
	$\frac{1}{2}$	$\frac{5}{16}$		$19\frac{11}{16}$
4	3			13 120
	6		5	1555
2		1458		2186
	$\sqrt{5}$	$625\sqrt{5}$	8	
$-\sqrt{3}$	$\sqrt{6}$	$-108\sqrt{2}$		