

$$x=0: \underline{0, -8, -16, -24}$$

$$x=\frac{5}{2}: \underline{\frac{5}{2}, \left(\frac{5}{2}\right)^2 - 8, 4 \cdot \frac{5}{2} - 16} \Rightarrow \underline{\frac{5}{2}, -\frac{7}{4}, -6, -\frac{41}{4}}$$

5. geometrisen jono ja summa

Esim. $1, 2, 4, 8, 16, 32, \dots$

$$a_{10} = 1 \cdot 2^9 = 512$$

Mää. jono (a_n) on geometrisen jono

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

q : sukdeluksen (ratio)

$$a_2 = a_1 \cdot q$$

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

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

5.2 geometrisen jono (a_n) : $-2, 6, \dots$

a) $q = \frac{a_2}{a_1} = \frac{6}{-2} = -3$

$$a_n = a_1 \cdot q^{n-1} = -2 \cdot (-3)^{n-1}$$

b) $a_{13} = -2 \cdot (-3)^{12} = -1062882$

c) $a_n = -2 \cdot (-3)^{n-1} = 4374 \quad | : (-2)$

$$\Rightarrow (-3)^{n-1} = -2187$$

$n-1$ potenssi: $3^{n-1} = 2187 \quad | \lg$

$$\Rightarrow \lg 3^{n-1} = \lg 2187$$

$$\Rightarrow (n-1) \lg 3 = \lg 2187 \quad | : \lg 3$$

$$\Rightarrow n-1 = \frac{\lg 2187}{\lg 3} \Rightarrow n = \frac{\lg 2187}{\lg 3} + 1 = 8$$

\Rightarrow 8. jäsen

$$a + a \cdot q + aq^2 + \dots + aq^{n-1} = \frac{a(1-q^n)}{1-q}$$

GEOMETRINEN SUMMA

$(q \neq 1)$

1. termi

sukdeluksen

termien lkm

Tod. $(a + aq + aq^2 + \dots + aq^{n-1})(1-q)$

$$= (a - aq) + (aq - aq^2) + (aq^2 - aq^3) + \dots + (aq^{n-1} - aq^n) \stackrel{\text{teleskooppi-ilmiö}}{=} a - aq^n = a(1-q^n)$$

\Rightarrow väite $| : 1-q \neq 0$