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3te Mathe HÜ am 25.09.22

Bsp's 1.40), 1.62a), 1.63a)

1.40)

(n in km)

(0 weil „0km" Meeresniveau gleich $t_{(0)}$ bedeutet).

$t_0 = 15°C$

$t_{10} = -55°C$

$t_n = t_1 + (n-1) \cdot d$

$15°C = t_1 + (-1) \cdot d$

$-55°C = t_1 + (9) \cdot d$

$70°C = -10d \quad | : (-10)$

$d = -7°C$

$(-1) \cdot (-7)$

$15°C = t_1 + 7 \quad | -7$

$t_1 = 8°C$

$t_n = 8 + (-7n + 7)$

$t_n = 15 - 7\frac{°C}{km} n$

1.62a)

$b_6 = 11664$

$q = 3$

$b_n = b_1 \cdot q^{n-1}$

$(b_{n+1} = b_n \cdot q)$

$11664 = b_1 \cdot 3^5 \quad | : 243$

$b_1 = 48$

$\langle b_n \rangle = \langle 48, 144, 432, 1296, 3888, \ldots \rangle$

$b_1 \cdot q^{n-1} = 10^3$

$48 \cdot 3^{n-1} = 10^3 \quad | : 48$

$3^{n-1} = \frac{10^3}{48}$

$3^{n-1} = 20{,}8\dot{3} \quad | \log()$

$(n-1) \cdot \log(3) = \log(20{,}83)$

$0{,}477n - 0{,}477 = 1{,}318 \quad | +0{,}477 \quad | : 0{,}477$

$n = 3{,}76 = 4$

$b_4 = 48 \cdot 3^3$

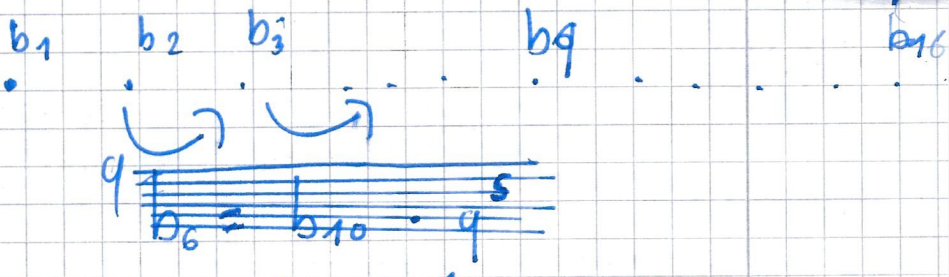
$b_4 = 1296$

$b_n = 48 \cdot 3^{n-1}$

163a)

$b_6 = 224$

$b_{16} = 229\,376$



$b_{16} = b_6 \cdot q^{10}$

$229\,376 = 224 \cdot q^{10} \mid :224$

$\sqrt[10]{\frac{229376}{224}} = q$

$q = 2$

$224 = b_1 \cdot 2^5 \mid :2^5$

$b_1 = 7$

$b_n = 7 \cdot 2^{n-1}$

$b_{n+1} = b_n \cdot 2$