

Megoldás. A feladatban szereplő egyenlőségeket felhasználva:

$$\begin{aligned} a_{2004} &= a_{2 \cdot 1002} = 1002 - a_{1002} = 1002 - a_{2 \cdot 501} = 1002 - (501 - a_{501}) = \\ &= 501 + a_{501} = 501 + a_{2 \cdot 250+1} = 501 + 250 - a_{250} = 751 - a_{2 \cdot 125} = \\ &= 751 - (125 - a_{125}) = 626 + a_{125} = 626 + a_{2 \cdot 62+1} = 626 + (62 - a_{62}) = \\ &= 688 - a_{62} = 688 - a_{2 \cdot 31} = 688 - (31 - a_{31}) = 657 + a_{31} = 657 + a_{2 \cdot 15+1} = \\ &= 657 + 15 - a_{15} = 672 - a_{15} = 672 - a_{2 \cdot 7+1} = 672 - (7 - a_7) = 665 + a_7 = \\ &= 665 + a_{2 \cdot 3+1} = 665 + 3 - a_3 = 668 - a_3 = 668 - a_{2 \cdot 1+1} = \\ &= 668 - (1 - a_1) = 667 + a_1 = 667 + 1337 = 2004. \end{aligned}$$

Tehát $a_{2004} = 2004$.