

1084 b. Dokazati da je za sve prirodne brojeve $n \geq 0$: $133 | 11^{n+2} + 12^{2n+1}$

Za $n = 1$

$$133 | 11^{1+2} + 12^{2 \cdot 1 + 1}$$

$$133 | 11^3 + 12^3$$

$$133 | 1331 + 1728$$

Pretpostavka da za $n = k$, $133 | 11^{k+2} + 12^{2k+1}$

Za $n = k+1$

$$133 | 11^{k+1+2} + 12^{2(k+1)+1}$$

$$133 | 11^{k+3} + 12^{2k+3}$$

$$133 | 11 \cdot 11^{k+2} + 12^2 \cdot 12^{2k+1}$$

$$133 | 11 \cdot 11^{k+2} + 144 \cdot 12^{2k+1}$$

$$133 | 11 \cdot 11^{k+2} + 133 \cdot 11^{k+2} + 144 \cdot 12^{2k+1} - 133 \cdot 11^{k+2}$$

$$133 | 144 \cdot 11^{k+2} + 144 \cdot 12^{2k+1} - 133 \cdot 11^{k+2}$$

$$133 | 144 \cdot (11^{k+2} + 12^{2k+1}) - 133 \cdot 11^{k+2}$$

$$133 | 144 \cdot (11^{k+2} + 12^{2k+1}) \wedge 133 | 133 \cdot 11^{k+2}$$
