

1084 e. Dokazati da je za sve prirodne brojeve  $n \geq 0$  :  $59 \mid 5^{n+2} + 26 \cdot 5^n + 8^{2n+1}$

Za  $n = 1$

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$$59 \mid 5^{n+2} + 26 \cdot 5^n + 8^{2n+1}$$

$$59 \mid 5^{1+2} + 26 \cdot 5^1 + 8^{2+1}$$

$$59 \mid 5^3 + 26 \cdot 5 + 8^3$$

$$59 \mid 125 + 130 + 512$$

$$59 \mid 767$$

Pretpostavka da za  $n = k$  ,  $59 \mid 5^{k+2} + 26 \cdot 5^k + 8^{2k+1}$

Za  $n = k+1$

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$$59 \mid 5^{k+1+2} + 26 \cdot 5^{k+1} + 8^{2(k+1)+1}$$

$$59 \mid 5^{k+1+2} + 26 \cdot 5^{k+1} + 8^{2(k+1)+1}$$

$$59 \mid 5 \cdot 5^{k+2} + 5 \cdot 26 \cdot 5^k + 64 \cdot 8^{2k+1}$$

$$59 \mid 5 \cdot 5^{k+2} + 5 \cdot 26 \cdot 5^k + 5 \cdot 8^{2k+1} + 59 \cdot 8^{2k+1}$$

$$59 \mid 5 \cdot (5^{k+2} + 26 \cdot 5^k + 8^{2k+1}) + 59 \cdot 8^{2k+1}$$

$$59 \mid 5 \cdot (5^{k+2} + 26 \cdot 5^k + 8^{2k+1}) \wedge 59 \mid 59 \cdot 8^{2k+1}$$

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