

$$N2. (2^n + n^{2016}) - \text{npolnoe}$$

$$n \in \mathbb{N}$$

Ne spjagno jamejno, vro n -necer, unere $(2^{2p} + 2^{2016} p^{2016}) : 2$
 (vovberetenne ne npolnoe. ($p \in \mathbb{N}$))

Torga $n=1 \Rightarrow 2+1=3$ - npolnoe, bejno.

Dokame, vro dokame nar zilla nec:

1) Njce $n=3k$, torga

$$(2^{3k} + (3k)^{2016}), k \in \mathbb{N}$$

$((2^k)^3 + ((3k)^{672})^3) : (2^k + (3k)^{672})$ - no ibojerby (paknau-
 gubacne, nar $(a^3 + b^3) = (a+b)(a^2 - ab + b^2)$)

Imere nju $n=3k$ - ne npolnoe

$$2) \text{ Njce } n \equiv 1 \pmod{3} \Rightarrow n^{2016} \equiv 1 \pmod{3}$$

T n n -necer, a 2 b necer coenem gic coenem 2 nju
 genem na 3: $2^1 \equiv 2 \pmod{3}$

$$2^2 \equiv 1 \pmod{3}$$

$$2^3 \equiv 2 \pmod{3}$$

$$2^4 \equiv 1 \pmod{3} \text{ u r.g}$$

$$\text{Imere } 2^n \equiv 2 \pmod{3}$$

$$\text{Torga } 2^n + n^{2016} \equiv 2+1 \equiv 3 \equiv 0 \pmod{3}$$

$$3) \text{ Njce } n \equiv 2 \pmod{3} \Rightarrow n^{2016} \equiv 2^{2016} \equiv 1 \pmod{3}$$

$$\text{U } 2^n \equiv 2 \pmod{3}$$

$$2^n + n^{2016} \equiv 2+1 \equiv 3 \equiv 0 \pmod{3}$$

Torga $n=3k$ - ne nj

$$n=(3k+1) - \text{ne nj}$$

$$n=(3k+2) - \text{ne nj}$$

Imere nar zilla n, none 1 - ne ygeibjer.

Otber: $n=1$