

N3 | Dělitelnost pěti

$$\underline{f(n) = n^5 - n} \quad F(n) : 5 \quad n \in \mathbb{N} \quad (a+b)^5 = a^5 + 5a^4b + 10a^3b^2 + 10a^2b^3 + 5ab^4 + b^5$$

1) $F(1) = 1^5 - 1 = 0$: Platí

2) nechť $F(n) : 5$

3) $F(n+1) : 5$ $F(n+1) = (n+1)^5 - (n+1) = n^5 + 5n^4 + 10n^3 + 10n^2 + 5n + 1 - n - 1 = n^5 - n + (5n^4 + 10n^3 + 10n^2 + 5n)$

$a \rightarrow n$

$b \rightarrow 1$

$\oplus 5n) = f(n) + 5(n^4 + 2n^3 + 2n^2 + n) : 5$ platí

$\downarrow$
 $: 5 \nmid P$