$P(k+1)$:

$10^{k+2} + 10^{k+1} + 1$

$= 3 \cdot m$

$P(k)$: $10^{k+1} + 10^{k} + 1 = 3 \cdot l$

$= 10^{k+1} \cdot 10 + 10^{k} \cdot 10 + 10 - 9$

$= 10(10^{k+1} + 10^{k} + 1) - 9$

$= 10 \cdot 3l - 9 = 3(10l - 3) = 3 \cdot m$

$N = \{1, 2, 3, \dots\}$

$S = \{5, 7, 9, 10\}$

Z = set of all integers

$= \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$

→ does not exist

(not well-ordered set)

$a = (1, \underset{i=2}{2}, 3, 4, 5, 6, \dots)$

$S^{-2} \cdot a = (3, 4, 5, 6, \dots)$

$(1, \underset{i=2}{5}, 7, 8, 9) \Rightarrow a = (1, 5, 7, 8, 9, 0, 0, \dots 0, \dots)$

$(7, 8, 9, 1, 5)$ ← circ l.s.

$(7, 8, 9, 0, 0)$ ← n. l.s.