Hoja de trabajo No.4

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30 de agosto del 2018

Ejercicio #1

1. $a := \{1, 2, 4, 8, 16, 32, 64\} \in d := \{n \in \mathbb{N} \mid \exists i \in \mathbb{N} . n = 2^i \wedge n < 100\}$

2. $b := \{n \in \mathbb{N} \mid \exists x \in \mathbb{N} . x = n/5\} \in f := \{n \in \mathbb{N} \mid \exists x \in \mathbb{N} . n = x + x + x + x + x\}$

3. $c := \{n \in \mathbb{N} \mid \exists x \in \mathbb{N} . n = x * x\} \in e := \{n \in \mathbb{N} \mid \exists x \in \mathbb{N} . x = \sqrt{n}\}$

Ejercicio #2

1. $a := \{n \in \mathbb{N} \mid \exists x \in \mathbb{N} x = n/15\}$

2. $c := \{n \in \mathbb{N} \mid \exists x \in \mathbb{N} x = n/5 \wedge x = n/4\}$

3. $d := \{a \forall 1 < x < a . a \bmod(x) \neq 0\}$

4. $b := \{a \mid a \subset P(\mathbb{N}) \mid \exists x \in \mathbb{N} . x/15 . \exists n \subset a . x = n/15\}$

5. $d := \{b \mid b \subset P(\mathbb{N}) \mid \exists x \in \mathbb{N} . x + x = 42\}$

Ejercicio #3

$Q(m) := \{n \in \mathbb{N} \mid n \leq m \wedge mcd \langle m, n \rangle = 1\}$
$mcd = \frac{m}{n}$

Ejercicio #4

1. $x \in \mathbb{N} . x + x = \{\langle x, x + x \rangle \mid x \in \mathbb{N}\}$

2. $x \in \mathbb{N} true = \{\langle x, true \rangle \mid \frac{x}{5}\} \cup x \in \mathbb{N} false = \{\langle x, false \rangle \mid \neg \frac{x}{5}\}$

3. $f \circ g \in P(N)$

4. $\{\langle x, f(gx) \rangle \mid x \in N \wedge f(x) \in N \wedge g(x) \subset f(x)$

Ejercicio #5

1. $f(x) = x^2$ surjectiva

2. $g(x) = \frac{1}{cos(x-1)}$ injectiva

3. $h(x) = 2x$ bijectiva

4. $w(x) = x + 1$ bijectiva

Ejercicio #6