Hoja de trabajo 4

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1 Ejercicio #1

1. $(a = d)$ $a := \{1, 2, 4, 8, 16, 32, 64\} = d := \{n \in N \mid \exists i \in N \ . \ n = 2^i \wedge n < 100\}$
2. $(b = f) b := \{n \ \in N \mid \exists x \in N \ . \ x = n/5\} = f := \{n \in N \mid \exists x \in N \ . \ n = x + x + x + x + x\}$
3. $(c = e) c := \{n \in N \mid \exists x \in N \ . \ n = x * x\} = e := \{n \in N \mid \exists x \in N \ . \ x = \sqrt{n}\}$

2 Ejercicio #2

1. $a := \{x \in N \mid \exists x \in N \ . \ x/5\}$
2. $b := \{x \in N \mid \exists x \in N \ . \ x/5 \wedge x/4\}$
3. $c := \{x \in N \ |(1 < x < n) \ \wedge n/x\}$
4. $d := \{d \subset P(N)| \ \exists x \in N \ . \ n = (x/15) \ \exists x \subset d|x/15\}$
5. $e := \{d \subset P(N)| \ \exists x \in N \ \wedge \exists n \in N \ . \ x + n = 42 \ \}$

3 Ejercicio #3

$\mathrm{B}_1 : \{<< Primo_1, Primo_2 >, semiprimo > \ |(Primo_1, Primo_2) \in N_{30} \wedge semi - primo = Primo_1 * Primo_2 >\}$

4 Ejercicio #4

1. $\lambda x \in N . x + x = \{< x, x + x > |x \in N\}$
2. $\lambda x \in N . true = \{< x, true > |x \in N \wedge x/5\} \bigcup \lambda x \in N . false = \{< x, false > |x \in N \wedge \neg(x/5)\}$
3. f $\circ g \in P(N)$
4. $\lambda x \in N . f(gx) = \{< x, f(gx) > |x \in N \wedge f(x) \in N \wedge g(x) \subset f(x)\}$

5 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**

6 Ejercicio #6

1. $\mathrm{B}_1 : \lambda x in N \mathrm{x} N . y = \{< x, y > |(x/2) \wedge y > 0\}$
2. $\mathrm{B}_2 : \lambda x N \mathrm{x} N . y = \{< x, y > |\neg(x/2) \wedge y > 0\}$
3. $\mathrm{B}_{2a} : \lambda x N \mathrm{x} Z . - y = \{< x, -y > |\neg(x/2) \wedge y < 0\}$
4. B:$\lambda x Z \mathrm{x} Z . y = \{< x, y > |(x/2), x \in Z \wedge y \in Z\}$