

**Instructions**

- Answer each question completely; justify your answers.
- This assignment is due at 4:00 pm on 29 February 2008.

1. Define  $h : \mathbb{N}^2 \rightarrow \mathbb{N}$  by  $h : (x, y) \mapsto (x + y)$ .

(a) Is  $h$  surjective?

(b) Is  $h$  injective?

2. Exercise 3.2.3.

3. Exercise 3.2.5.

4. Exercise 3.2.8.

5. Exercise 3.2.10, except part (a).

6. Exercise 3.2.13.

7. Exercise 3.2.19, except part (a).

8. Exercise 3.2.22, part (b).