Homework 1 (due Monday 10 September)

Exercise 5:1

- 5:1. Show that the following functions are primitive recursive.
  (a) Multiplication: $x \cdot y$ [10 pts]
  (b) Exponentiation x^y [10 pts]
  (c) Factorial $x!$ [10 pts]
  (d) Monus $x \dot{-} y$ defined by

$$x \dot{-} y := \begin{cases} x - y & \text{if } x \geq y \\ 0 & \text{if } x < y \end{cases}$$

  [10 pts]

  (Optional) Conclude that the primitive recursive relations are closed under conjunction. [10 pts]