# In-class, Week 7, day 1

**Section 5.4, Problem 18:** Prove that Algorithm 1 for computing $n!$ when $n$ is a nonnegative integer is correct.

Algorithm 1:
**procedure** $factorial(n :$ nonnegative integer)
**if** $n = 0$ **then return** 1
**else return** $n * factorial(n - 1)$

**Section 5.4, Problem 24:** Devise a recursive algorithm to find $a^{2^n}$ where $a$ is a real number and $n$ is a positive integer. [Hint: use the equality $a^{2^{n+1}} = \left(a^{2^n}\right)^2$.]