

## CS / MCS 401 Week #2 Exercises

**Exercise 3.1–4** (*page 50*).

**Exercise 3.2–6** (*page 57*).

**Exercise 3–2** (*page 58*).

You make use of the facts proven in class about the relative rates of growth of logarithms, polynomials, and exponentials.

**Exercise 3–3, part (a)** (*page 58*).

You may omit the functions involving  $\lg^*(n)$ . Again, you make use of the facts proven in class about the relative rates of growth of logarithms, polynomials, and exponentials.

**Exercise 3–4, parts (c) and (d)** (*page 59*).

C. Use Stirling's Formula to obtain a good estimate of the value of  $46!$  (46 factorial). Then include the  $1 + 1/(12n)$  term to obtain an even better estimate. Write your answers in scientific notation, with enough decimal places shown to distinguish the two estimates.