

CSE 321: Discrete Structures
Assignment #7
May 22, 2002
due: Wednesday, May 29

Don't be dismayed by the length of this assignment: the problems are mostly short-answer, and many are routine. If your answer to a problem is too unwieldy to evaluate, you can leave it in terms of factorials, combinations, etc., for instance 26^3 or $P(26, 3)$ or $26\binom{26}{3}$. Show enough of your work so that we can see how you arrived at your answer. If you are unfamiliar with the standard deck of playing cards, reread the paragraph on pages 262-263 and the examples following it.

1. A *partial function* from a set A to a set B maps some of the elements of A to elements of B , and leaves the rest undefined. For instance, an ordinary function is a partial function in which none of the mappings are left undefined, but $f(x) = 1/x$ is a function that leaves $f(0)$ undefined (assuming that 0 is in the domain A). If $|A| = m$ and $|B| = n$, how many partial functions are there from A to B ?
2. Section 4.1, exercise 38.
3. Section 4.1, exercise 46. Use the formula for a geometric series, Example 12 of Section 1.7, to simplify your answer. (Learn this formula: it is important.)
4. Section 4.3, exercise 14.
5. Section 4.3, exercise 22.
6. Section 4.3, exercise 40.
7. Section 4.4, exercise 8.
8. Section 4.4, exercise 12.
9. Section 4.4, exercise 16.