ICS 6D—Winter 2024 (Dillencourt)
Homework 2 (Corrected version posted January 19, 4:30 PM)

1. zyBook exercise 8.1.1, parts (a) (c), (e), (g), (i)

2. zyBook exercise 8.1.3. [**NOTE: This is a correction**]

3. zyBook exercise 8.2.1, parts (a) (c), (e), (g)

4. zyBook exercise 8.3.1, parts (a) (c), (e). (In each part, your answer should be a number.)

5. zyBook exercise 8.3.2

For the induction proofs in this homework assignment, it is important that you label the base case and the inductive step. It is also important that you begin the inductive step with a clear statement about what you are assuming and what you will prove. In the proof of the inductive step, you need to label where you are using the inductive hypothesis. Please refer to the examples in the zyBook for the correct format.

6. zyBook exercise 8.4.1

7. zyBook exercise 8.4.2, part a

8. zyBook exercise 8.4.2, part c

9. Prove by induction that for $n \geq 7$, $n! > 3^n$.

10. Prove by induction that for $n \geq 4$, $3^n > n^3$.

11. zyBook exercise 8.5.1, part a

12. zyBook exercise 8.5.1, part b

13. zyBook exercise 8.5.3, part a

14. zyBook exercise 8.5.3, part b