Exercise 3.1: How many different Boolean functions are there of 3 variables? Of \( n \) variables?

Exercise 3.2: Do Exercise 6, p.216, parts a, b, and d.

Exercise 3.3: Do Exercise 2, p.257 (continues on p.258).

Problem 2.1: Do Problem 2, p.217.

Problem 2.2: An inverter has the input/output transfer characteristic shown below:

![Transfer Characteristic Graph]

For suitable choices of the voltages \( V_{OL} \), \( V_{IL} \), \( V_{IH} \), and \( V_{OH} \) this inverter obeys the static discipline (see Figure 6.7 on page 194 in the notes).

Give values of \( V_{OL} \), \( V_{IL} \), \( V_{IH} \), and \( V_{OH} \) that actually achieve the static discipline with a positive noise margin. What is the noise margin you obtained?

Problem 2.3: Do Problem 9, p.265, but with the following modification: You need only design an inverter that meets the specification; you need not find a minimum area solution. Also, in calculating the area of your inverter you need to consider only the area taken by the gates of the transistors; you may ignore the area taken by source and drain regions and by interconnect.