(1) Results from today’s class:
(a) If \( x \in \mathbb{Z} \) and \( 5x - 7 \) is even, then \( x \) is odd.
(b) Let \( x \in \mathbb{Z} \). Then \( 11x - 7 \) is even iff \( x \) is odd.
(c) Let \( x \in \mathbb{Z} \). Then \( x \) is even iff \( x \) is even.
(d) Let \( x \in \mathbb{Z} \). If \( 5x - 7 \) is odd, then \( 9x + 2 \) is even.
   
   \( \bullet \) Lemma: If \( x \in \mathbb{Z} \) and \( 5x - 7 \) is odd, then \( x \) is even.
   
   \( \bullet \) \( 9x + 2 = (5x - 7) + 4x + 9 \)

(e) Let \( a, b \in \mathbb{Z} \). Then \( ab \) is even iff either \( a \) or \( b \) is even.

(2) We also discussed cases in class. Some possibilities:
(a) \( x \in \mathbb{Z} \)
   
   \( \bullet \) \( x \) even
   
   \( \bullet \) \( x \) odd

(b) \( x \in \mathbb{N} \)
   
   \( \bullet \) \( x = 1 \)
   
   \( \bullet \) \( x \geq 2 \)

(c) \( xy \in \mathbb{Z} \)
   
   \( \bullet \) \( xy > 0 \) (subcases: \( x > 0, y > 0 \) and \( x < 0, y < 0 \))
   
   \( \bullet \) \( xy = 0 \) (subcases: \( x = 0 \) and \( y = 0 \))
   
   \( \bullet \) \( xy < 0 \) (subcases: \( x < 0, y > 0 \) and \( x > 0, y < 0 \))

(3) Your second hand-in homework assignment is due at the beginning of class next \textbf{Wednesday, 7 May}. The problems are listed below; all of them come from your textbook. You may discuss your work with your classmates, but you should nearly write your solution in your own words without consultation from your classmates. The underlined problems must be completed completely on your own; the problems in parentheses must be typeset using LaTeX.

\[
\begin{array}{cccc}
3.31 & 3.34 & 3.36 & (3.39) \\
3.42 & 3.44 & 3.45 & (3.47) \\
4.3 & 4.12 & 4.38 & (4.46) \\
4.51 & 4.60 & (4.66) & 4.67 \\
\end{array}
\]

(4) Read Chapter 3 in the text. We’ve discussed most of the proofs in class, so focus your attention on the comments about the proofs.