1. Read Chapter 1 of the textbook.
2. Let the propositions p, q, r, and s be given as follows. $p: 1+3=5$; $q: -1$ is the square of some real number; r: The capital of Liechtenstein is Vaduz; s: Sierra Nevada Beer is brewed in Chico, CA. Find the truth values for:
   (a) $p \vee q$;
   (b) $r \wedge s$;
   (c) $\overline{(p \vee q)} \wedge (\overline{r} \vee s) \wedge (\overline{p} \wedge s)$;
   (d) $(p \vee s) \wedge \underline{(q \vee r) \vee \overline{(r \vee s)}}$;
   (e) $\overline{p \to q}$;
   (f) $(p \wedge r) \leftrightarrow r$;
   (g) $p \vee (\overline{p} \wedge \overline{(q \vee r)}) \to (p \vee \overline{(r \vee q)})$.
3. Find the truth tables for
   (a) $(p \wedge q) \vee \overline{q}$;
   (b) $(p \vee q) \wedge \overline{(\overline{p} \vee q)}$.
4. Work on problems 42–55 of Section 1.2 of the textbook.
5. Are the following statements true or false? Prove your claim.
   (a) $\forall x \in \mathbb{R}\ x^2 - 9 = 0$;
   (b) $\exists x \in \mathbb{R}\ x^2 - 9 = 0$;
   (c) $\forall x \in \mathbb{R}\ \exists y \in \mathbb{R}\ x = y^2$;
   (d) $\exists x \in \mathbb{R}\ \forall y \in \mathbb{R}\ xy = 0$;
   (e) $\forall \varepsilon > 0\ \exists N \in \mathbb{N}\ \frac{1}{N} < \varepsilon$;
   (f) $\forall \varepsilon > 0\ \exists \delta > 0\ \forall x \in (0, \delta)\ x^2 \in (0, \varepsilon)$.