1.1: 1, 3, 4, 5, 6, 7, 9, 15, 16

*1. (a), (c), (e), (f)

*4. a. antecedent: sufficient water
   consequent: healthy plant growth
b. antecedent: further technological advances
   consequent: increased availability of information
c. antecedent: errors will be introduced
   consequent: there is a modification of the program
d. antecedent: fuel savings
   consequent: good insulation or storm windows throughout

5. a. 1 and 3  b. 2  c. 4

6. *a. The food is good but the service is poor.
   *b. The food is poor and so is the service.
   c. Either the food is poor or the service is poor, but the price is low.
   d. Either the food is good or the service is excellent.
   e. The price is high but either the food is poor or the service is poor.

7. a. A ∧ B
   b. A ∧ (B ∨ C)
   c. B → (A ∧ C)
   d. A → (B' ∨ C')
   e. A ∧ [C' → (B' ∨ C)]

*9. a. A: prices go up; B: housing will be plentiful;
   C: housing will be expensive
   [A → B ∧ C] ∧ (C' → B)
   b. A: going to bed; B: going swimming; C: changing clothes
   [(A ∨ B) → C] ∧ (C → B')
   c. A: it will rain; B: it will snow
   (A ∨ B) ∧ (A ∧ B')
   d. A: Janet wins; B: Janet loses; C: Janet will be tired
   (A ∨ B) → C
   e. A: Janet wins; B: Janet loses; C: Janet will be tired
   A ∨ (B → C)
15. *a. $\begin{array}{c|c|c} A | A' | A \lor A' \\ \hline T | F | T \\ F | T | T \end{array}$

b. $\begin{array}{c|c|c|c} A | A | (A')' | (A')' \\ \hline T | F | T | F \\ F | T | F | T \end{array}$

c. $\begin{array}{c|c|c|c} A | B | A \land B | A \land B \to B \\ \hline T | T | T | T \\ T | F | F | T \\ F | T | F | T \\ F | F | F | T \end{array}$

d. $\begin{array}{c|c|c|c} A | B | A \lor B | A \to A \lor B \\ \hline T | T | T | T \\ T | F | F | T \\ F | T | T | T \\ F | F | F | T \end{array}$

e. $\begin{array}{c|c|c|c|c|c|c|c} A | B | A \land B | (A \lor B)' | A' | B' | A' \land B' | (A \lor B)' \leftrightarrow A' \land B' \\ \hline T | T | T | F | F | F | F | T \\ T | F | T | F | F | T | F | T \\ F | T | T | F | F | F | F | T \\ F | F | F | T | F | T | T | T \end{array}$

f. $\begin{array}{c|c|c|c|c|c|c|c} A | B | A \land B | (A \land B)' | A' | B' | A' \lor B' | (A \land B)' \leftrightarrow A' \lor B' \\ \hline T | T | T | F | F | F | F | T \\ T | F | F | T | F | F | T | T \\ F | T | F | T | T | F | T | T \\ F | F | F | T | T | T | T | T \end{array}$

16. For example: (A OR B) AND NOT (A AND B) AND NOT C