

## Homework 1

1. Section 1.1: 10
2. Section 1.2: 20, 24. For both of these problems, prove logical equivalence using (i) truth tables and (ii) identities.
3. Section 1.3: 12.
4. Section 1.3: 28. For this problem, let the domain of  $x$  be all tools. Let  $C(x) =$  “ $x$  is in the correct place” and  $E(x) =$  “ $x$  is in excellent condition”.

Next, negate each statement in English.

Finally, form the negation of each statement using the logical proposition you’ve formulated above. Make sure that all negation operators have been “moved in”; that is, no negation operator is to the left of a quantifier.