MATH 4LT/6LT3 Assignment #6

Due: Monday, 1 December by 11:59pm.
Note: Assignments that are submitted after this deadline, but before 11:59pm on Friday, December 5 will be accepted, without any late penalty.

1. Exercise 3.10.15 from the textbook.
2. Exercise 3.10.19 from the textbook.
3. Exercise 3.10.21 from the textbook.
4. Let

   $SAT_2 = \{\ulcorner \phi \urcorner \mid \phi \text{ is a Boolean formula that has at least two satisfying assignments}\}$.

   (a) Show that SAT_2 is an NP language.
   (b) Show that $SAT \leq_m^{\mathcal{P}} AT_2$.
   (c) Is SAT_2 an NP-complete language?

Skip this question, since we aren't going to study circuits

should be to show that SAT is poly-time, many-one reducible to SAT_2

The following question is for students enrolled in MATH 6LT3. Students in MATH 4LT3 can treat it as a bonus question.

B1 Exercise 3.10.64 from the textbook.