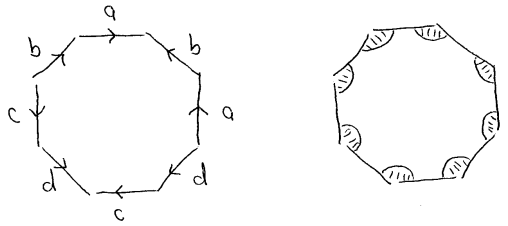
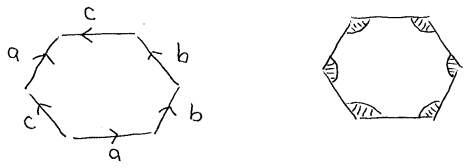
Assignment 8; Due Friday, November 18

Read section eleven on manifolds and surfaces spaces. Then do the following problems:

- 10.7b
- 11.2 a
- 11.2b (graduate students only)
- 11.2 f (graduate students only)
- Consider the identification space illustrated below. Show that all vertices of this octagon glue to the same point. Show that this point has a neighborhood homeomorphic to an open subset of R^2 by carefully examining how the shaded segments glue together.



- Show that this identification space is homeomorphic to a two holed doughnut by drawing a series of pictures. The book does this as well; try it independently.
- Consider the identification space shown below. Show that all vertices of this hexagon glue to the same point. Show that this point has a neighborhood homeomorphic to an open subset of R^2 by carefully examining how the shaded segments glue together.



- Show that this identification space is homeomorphic to $T^2 \# RP^2$. The book does this by drawing a series of pictures; draw your own pictures, explaining carefully the various steps in the demonstration. You may base your pictures on the book's if you like.