MATH 402 Homework 9
Due Friday 11 November, 2016

(1) (*5 pts.*) Solve 8.2.2.
(2) (*5 pts.*) Solve 8.2.3. Maybe draw a picture, too. (Don't worry, no points are awarded for quality of circle-drawing.)
(3) (*15 pts.*) Solve 8.2.4–8.2.7, proving that the set of Möbius transformations forms a *group*. Solve 8.2.8: the set of Möbius transformations fixing the unit circle is a group too.
(4) (*10 pts.*) Solve 8.2.10 and 8.2.14.
(5) (*10 pts.*) Solve 8.2.12 and 8.2.15.

   You should learn the formula in question 8.2.13, and then you should feel free to use it in homework and exam problems if it simplifies the computations. (Of course you can use it even if it doesn't simplify things, but maybe you don't want to.) You do not need to submit the proof, but you could try to do the exercise for practice anyway.