

## MATH 402 Homework 4

Due Friday 9/23/16

- (1) (*Will not be graded.*) Read and understand the proof of Theorem 3.6. Then write it down in your own words.
- (2) (*5 pts.*) Solve 3.2.5.
- (3) (*10 pts.*) Solve 5.3.7, 5.3.8.
- (4) (*10 pts.*) Solve 5.4.4, 5.4.5.
- (5) (*5 pts.*) Solve 5.6.4.
- (6) (*10 pts.*) Solve 5.7.3, 5.7.4.
- (7) (*10 pts.*) A polygon is called regular if all of its sides and interior angles are congruent to each other. We call a polygon with  $n$ -vertices an  $n$ -gon. Consider a regular  $n$ -gon.
  - Does a regular  $n$ -gon have bilateral symmetries? If yes, classify all of them. (*See 5.2.2*)
  - Does a regular  $n$ -gon have translational symmetries? If yes, classify all of them. (*See 5.3.1*)
  - Does a regular  $n$ -gon have rotational symmetries? If yes, classify all of them. (*See 5.4.1*)