

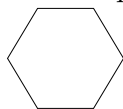
MA 202  
Spring Semester 2004

**WARNING:** You must **SHOW ALL OF YOUR WORK**. You will receive NO CREDIT if you do not show your work.

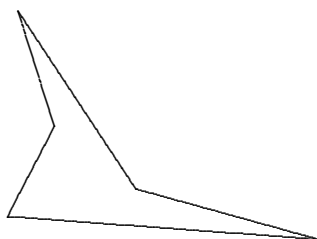
**DUE: ????**

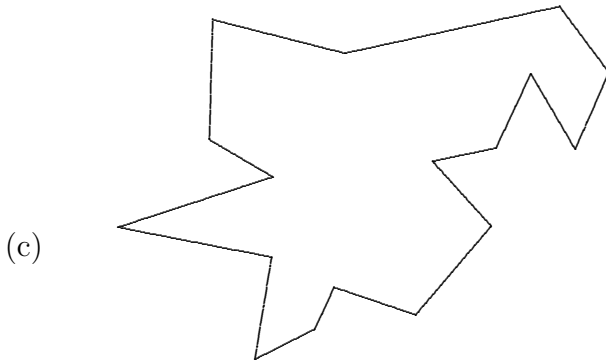
1. What are vertical angles? Explain why vertical angles have the same measure.
2. What are corresponding angles? Include a general picture with your answer.
3. What are alternate interior angles? Prove the Alternate Interior angles Theorem.
4. Explain how you would convince a student that the sum of the measures of the angles in a triangle is  $180^\circ$ .
5. Prove that the sum of the measures of the angles of a triangle is  $180^\circ$ .
6. Use what you know about the angles of a triangle to find the sum of the measures of the interior angles of the following figures.

(a) Do this problem two different ways.



(b)





7. Based on your observations from the previous question, make a conjecture about the sum of the interior angles of an  $n$ -gon. How would you use triangles to justify your formula?
8. What is the measure of each interior angle of a regular  $n$ -gon? Justify your answer.
9. What is the measure of each exterior angle of a regular  $n$ -gon? Justify your answer.
10. What is the measure of each central angle of a regular  $n$ -gon? Justify your answer.
11. Draw polygons of the following types, if possible. If it is not possible to draw such a polygon, explain why it is not possible.
  - (a) A polygon which is equilateral but not equiangular.
  - (b) A polygon which is equiangular but not equilateral.
  - (c) A triangle which is equilateral but not equiangular.
  - (d) A triangle which is equiangular but not equilateral.
12. Circle the correct answer.
  - (a) Counterclockwise angles have (positive, negative) measure.
  - (b) Clockwise angles have (positive, negative) measure.
13. Do numbers 4a, 5, and 12–19 in section 11.1 of your textbook.
14. Do numbers 1–4, 7–8, 11–13, and 16–19 in section 11.2 of your textbook.