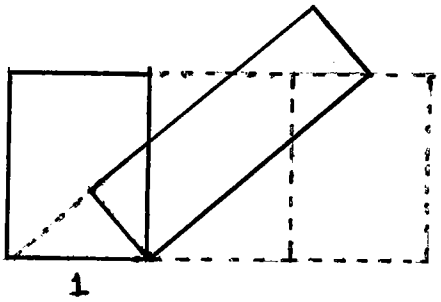
Math 4513
Assignment 3

12. A polygon P is *convex* if the line segment connecting any two points of P is contained in P. Show that a convex polygon with n sides can be cut into n triangles.

13. *a.* Show that any polygon can be cut into convex pieces by extending the lines that form its edges.
b. Deduce that any polygon can be cut into a finite number of triangles.

14. Show that given any triangle, you can cut it into a finite number of pieces and reassemble the pieces to form a rectangle.

15. Show that any rectangle may be cut into a finite number of pieces and the pieces reassembled to form a rectangle with width 1. (Hint: see the figure below.)



16.*a.* Show that any polygon can be cut into a finite number of pieces and the pieces reassembled to form a rectangle with width 1. (Use problems 13, 14, and 15.)
b. Show that if P and P' are any two polygons of equal area, then P can be cut into a finite number of pieces and the pieces reassembled to form P'. (Use part a.)