

MATHEMATICS 3100. First Midterm Test (Sample).

January 31, 2002

The exam is “closed book, closed notes”.

1. [20 points] Show that the sum of angles of a triangle is 180° degrees.
2. [20 points] State the definition of parallel lines in the plane.
3. [20 points] Prove that the function $f(x, y) = (x + a, y + b)$ is a motion of the plane.
4. [20 points] State and prove the converse of the Z -principle.
5. [20 points] Prove that if m is a motion of the line such that $m(0) = 0$ then either $m(x) = x$ or $m(x) = -x$.