

**MATHEMATICS 3100-1. Homework # 4.**

1. Problems 1, 2, 5 section P5.
2. Compute formulae for the compositions  $f = n \circ m, g = m \circ n$  of the motions

$$m(x, y) = (x + 1, y + 2), n(x, y) = (x - 1, y - 1).$$

Your formulae should have the form  $h(x, y) = (x + a, y + b)$  for some constants  $a, b$ .

3. Given a motion  $m(x, y) = (x + a, y + b)$  find formula for a motion  $n$ , such that  $h = n \circ m$  is the *identity motion*, i.e.  $h(x, y) = (x, y)$ .
4. Repeat # 3 for the “flip” motion  $m(x, y) = (x, -y)$ .