

# AE1MCS: Tutorial 4

1. Show that if  $a$  and  $b$  are real numbers and  $a \neq 0$ , then there is a unique real number  $r$  such that  $ar + b = 0$ .

2. Prove that at least one of the real numbers  $a_1, a_2, \dots, a_n$  is greater than or equal to the average of these numbers.

3. Prove that if  $n$  is an integer, these four statements are equivalent: (1)  $n$  is even, (2)  $n + 1$  is odd, (3)  $3n + 1$  is odd, (4)  $3n$  is even.

# More Exercises in the Textbook

- Section 1.6
  - 3, 5, 7, 13, 15, 17-20, 23-29, 33, 34-35\*
- Section 1.7
  - 13, 14, 16, 19-25, 34, 35, 38-40
- Section 1.8
  - 3, 4, 7, 15, 29-32
- Section 5.1
  - 3-17, 18, 19
- Section 5.2
  - 1-4