

# COMP110 EXERCISE SHEET I: NUMBER BASES

Version 1.0  
BSc Computing for Games  
COMP110

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1. Convert the following numbers from decimal to binary:
  - (a) 228
  - (b) 179
  - (c) 3236
  - (d) 4963
  - (e) 16887
2. Convert the following numbers from binary to decimal:
  - (a) 01111111
  - (b) 11001100
  - (c) 1110101111011100
  - (d) 1100100100011010
  - (e) 0000000101111010
3. For each of the following sums:
  - Convert the numbers from decimal to binary
  - Perform the calculation
  - Convert the answer back to decimal
  - (a)  $18 + 63$
  - (b)  $148 + 189$
  - (c)  $606 + 727$
  - (d)  $41958 + 36911$
  - (e)  $2197 + 39444$
4. For each of the following differences:
  - Convert the numbers from decimal to binary
  - Convert the second number to 2's complement representation
  - Perform the calculation
  - Convert the answer back to decimal
  - (a)  $200 - 173$
  - (b)  $195 - 142$
  - (c)  $61 - 67$
  - (d)  $17763 - 37630$
  - (e)  $38311 - 2601$