

1. Choose a four-digit base 6 number  $abcd_6$ . Of course the digits  $a, b, c$  and  $d$  are all in the range  $0, 1, 2, \dots, 5$ , and  $a \neq 0$ . That's right you make up your own problem.
  - (a) Interpret  $abcd_6$  to get its decimal equivalent.
  - (b) Next use repeated subtraction to find the base 6 representation of the decimal you obtained in part (a).
2. Perform each of the arithmetic operations indicated. Use the base 6 addition and multiplication tables developed in class.
  - (a)  $2354_6 + 5434_6$
  - (b)  $12354_6 - 5434_6$
  - (c)  $2354_6 \times 34_6$
  - (d)  $12354_6 \div 24_6$
3. Find the value of each of the expressions
  - (a)  $1010101_2$
  - (b)  $1101101_3$
  - (c)  $11.011_4$
  - (d)  $1201_5$
  - (e)  $2301_7$
4. Find the binary (=base 2) representation of
  - (a) 2006 using the subtraction method.
  - (b) Find the binary representation of 2003.
5. Perform the indicated arithmetic
  - (a)  $1101_2 + 10111_2$
  - (b)  $1101_2 \times 10111_2$
  - (c)  $1011100_2 - 100101_2$
6. Write the numbers from 1 to 100 in both binary and ternary (base 3).