

Homework 0

1) a) 0110 0100

b) 10201

c) 1210

d) 400

e) 244

f) 202

g) 144

h) 121

i) 100

j) 91

k) 84

2) 101×97

$$101 = 100 + 1 = 1 \cdot 10^2 + 0 \cdot 10^1 + 1 \cdot 10^0 = (1, 0, 1)$$

$$97 = 100 - 3 = 1 \cdot 10^2 + 0 \cdot 10^1 - 3 \cdot 10^0 = (1, 0, -3)$$

$$\begin{array}{r} 1 \ 0 \ 1 \\ 1 \ 0 \ -3 \\ \hline -3 \ 0 \ -3 \\ 0 \ 0 \ 0 \end{array}$$

-3 not allowed

$$\begin{array}{r} 1 \ 0 \ 1 \\ \hline 1 \ 0 \ -2 \ 0 \ -3 \end{array}$$

$$-3 = -(1, -7) = (-1, 7)$$

$$\begin{array}{r} 1 \ 0 \ -2 \ 0 \ -3 \\ \hline 1 \ 0 \ -2 \ -1 \ 7 \end{array}$$

-1 not allowed

$$\begin{array}{r} 1 \ 0 \ -2 \ -1 \ 7 \\ \hline 1 \ 0 \ -3 \ 9 \ 7 \end{array}$$

$$-1 = -(1, -9) = (-1, 9)$$

$$\begin{array}{r} 1 \ 0 \ -3 \ 9 \ 7 \\ \hline 1 \ -1 \ 7 \ 9 \ 7 \end{array}$$

-3 not allowed

$$1 \ -1 \ 7 \ 9 \ 7$$

$$(1, -1, 7, 9, 7) = \boxed{9797}$$

$$3) 26_{10} \times 80_{10}$$

$3\sqrt{26}$

$$222 \times 2222$$

$$02222$$

$$222$$

$$4444$$

$$44440$$

$$444400$$

$$493284$$

4) 1 2 3 4 5 6 7 8 | 9 | 10 | 11 | 12

1 2 10 11 12 20 21 22 | 100 | 101 | 102 | 110

13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26

111 | 112 | 120 | 121 | 122 | 200 | 201 | 202 | 210 | 211 | 212 | 220 | 221 | 222

1 10 12 21