

Example 1.22: Addition

1 1 1 ← carries	Scratchpad
1 4 7 6	6
+ 3 5 5 4	+ 4
5 2 5 2	(10) <sub>10</sub> = (12) <sub>8</sub>
sum	8 1 2

most significant

1	1
+ 7	+ 4
+ 5	+ 5
(13) <sub>10</sub> = (15) <sub>8</sub>	(10) <sub>10</sub> = (12) <sub>8</sub>
8 1 1 5	8 1 2
1	1
+ 1	+ 1
+ 3	+ 3
(5) <sub>10</sub> = (5) <sub>8</sub>	

Example 1.23: Subtraction

4 14	Digit position 2 required a
5 4 7 5	borrow from position 3
- 3 7 6 4	∴ Octal      Decimal
1 5 1 1	

14 <sub>8</sub>	12
- 7 <sub>8</sub>	- 7
5 <sub>8</sub>	5 <sub>10</sub> = 5 <sub>8</sub>

Example 1.24: Subtraction

3 7 7
5 4 0 0 4 5
- 3 2 5 6 5 4
2 1 2 1 7 1

The intermediate 0s become r - 1 or 7 when borrowed.

Example 1.25: Multiplication

543	Scratchpad
× 27	3 × 7 = (21) <sub>10</sub> = (25) <sub>8</sub> ← These can be
4665	4 × 7 = (28) <sub>10</sub> = (34) <sub>8</sub> obtained directly
1306	5 × 7 = (35) <sub>10</sub> = (43) <sub>8</sub> from Table 1.4.
17745	
product	

25	34	43
4665		

3 × 2 = (6) <sub>10</sub> = (6) <sub>8</sub>
4 × 2 = (8) <sub>10</sub> = (10) <sub>8</sub>
5 × 2 = (10) <sub>10</sub> = (12) <sub>8</sub>
06
10
12
1306

Example 1.26: Division

543 ÷ 7
062
7 543
0 543
543
52
23
16
5

Use the multiplication table in Table 1.4 to derive the quotient digit (by trial and error).

1.4.3 Hexadecimal Arithmetic

Table 1.5 shows the addition and multiplication tables. The following examples illustrate hexadecimal arithmetic.