

### Ex. 3.4A

22. (a)

		7		2		8		
		6	3	1	8	7	2	9
		2	8	0	8	3	2	4
6	8	4	3	2				

$$728 \times 94 = 68432$$

(b)

		3		0		6		
		0	6	0	0	1	2	2
		1	2	0	0	2	4	4
0	7	3	4	4				

$$306 \times 24 = 7344$$

23. (a)

		3		2		3		
		2	2	1	3	2	2	4
		1	1	0	4	1	1	2
3	0	2	2	1				

$$323_5 \times 42_5 = 30221_5$$

### Ex. 3.5A

13. (a)

$$\begin{array}{r} 32_5 \\ \times 4_5 \\ \hline 233_5 \end{array}$$

(b)

$$\begin{array}{r} 4_5 \\ 4_5 \overline{) 32_5} \\ \underline{31_5} \\ 1_5 \end{array}$$

$$32_5 \div 4_5 = 4_5 R 1_5$$

(c)

$$\begin{array}{r} 43_6 \\ \times 23_6 \\ \hline 213_6 \\ 1300_6 \\ \hline 1513_6 \end{array}$$

(d)

$$\begin{array}{r} 31_5 \\ 3_5 \overline{) 143_5} \\ \underline{140_5} \\ 3_5 \\ \underline{3_5} \\ 0_5 \end{array}$$

$$143_5 \div 3_5 = 31_5$$

(e)

$$\begin{array}{r} 110_2 \\ 11_2 \overline{) 10010_2} \\ \underline{11_2} \\ 110_2 \\ \underline{110_2} \\ 0_2 \end{array}$$

$$10010_2 \div 11_2 = 110_2$$

(f)

$$\begin{array}{r} 10110_2 \\ \times 101_2 \\ \hline 10110_2 \\ 000000_2 \\ 1011000_2 \\ \hline 1101110_2 \end{array}$$

**Ex. 3.5B**

1. (a)  $48 \div x = 16$  can be written as  $x \times 16 = 48$ .  
(b)  $x \div 5 = 17$  can be written as  $5 \times 17 = x$ .
6. (a)  $6 \div 2 \neq 2 \div 6$  so division is not commutative over the whole numbers.  
(b)  $6 - 2 \neq 2 - 6$  so subtraction is not commutative over the whole numbers.
9. (a) The greatest quotient must have the smallest divisor and largest dividend, so we need  $3 \overline{) 876}$ .  
(b) The smallest quotient must have the largest divisor and smallest dividend, so we need  $8 \overline{) 678}$ .
17. Cost of her policy is  $30 \times \$24 = \$720$   
Monthly installment  $= \$720 \div 12 = \$60$
18. (a)  $\{x \mid x = 4k + 1 \text{ for any whole number } k\}$   
(b)  $\{1, 5, 9, 13, 17, \dots\}$   
(c) It is an Arithmetic Sequence with  $a_1 = 1$  and  $d = 4$ .
19. (a)  $(4 + 3) \cdot 2 = 14$   
(b)  $(9 \div 3) + 1 = 4$   
(c)  $(5 + 4 + 9) \div 3 = 6$   
(d)  $(3 + 6 - 2) \div 1 = 7$
22. (a) 200,000 is high because  $400 \times 500 = 200,000$  so  $398 \times 500$  must be less than 200,000.  
(b) 10 is low because  $10,000 \div 1000 = 10$  so  $10,000 \div 999$  must be greater than 10.  
(c) 20 is low because  $8,000 \div 400 = 20$  so  $8,001 \div 398$  must be greater than 20.  
(d) 10 is high because  $2,000 \div 200 = 10$  so  $1,999 \div 201$  must be less than 10.