16 **a** 70% **b** 92% **c** $22\frac{1}{2}$%
d 80% **e** 36.1% **f** 4%

17

Fraction (simplest form)	Decimal	Percentage
$\frac{3}{5}$	0.6	60%
$\frac{4}{5}$	0.8	80%
$\frac{41}{50}$	0.82	82%

18 **a** 36 **b** \$72 **c** 6
d \$23.10 **e** 51 kg **f** 234 m

19 13.2 mins **20** $\frac{4}{13}$ **21** 20%

22 **a** $\frac{17}{20}$ **b** 85%

Chapter 5

SkillCheck

1 **a** 8 **b** 4 **c** 6 **d** 15
e 2 **f** 30 **g** 6 **h** 9
i −3 **j** −3 **k** −1 **l** −7

2 **a** 6 **b** 6 **c** 10
d 7 **e** −4 **f** 7

3 **a** 11 **b** 20 **c** 11 **d** 9
e 4 **f** 7 **g** 25 **h** 1
i 2 **j** 32

4 **a** 150 **b** 252 **c** 140
d 80 **e** 130 **f** 26

5 Yes

6 **a** −11 **b** 17 **c** 1 **d** 14
e 16 **f** 6 **g** −13 **h** 21

7 **a** −3 **b** −5 **c** −12 **d** −2
e 3 **f** −11 **g** 36 **h** 3
i −10 **j** −8 **k** −9 **l** −72

Exercise 5-01

1 **a** 25 **b** 118 **c** 48
d 150 **e** 150 **f** 80
g 10 **h** 65 **i** 14
j 119 **k** 100 **l** 84

2 **a** 170 **b** 810 **c** 1400
d 640 **e** 140 **f** 150
g 48 **h** 400 **i** 80
j 600 **k** 90 **l** 1400

3 **a** 7000 **b** 10 000 **c** 270 **d** 2800
e 400 **f** 1200 **g** 160 **h** 24 000
i 24 000 **j** 3300 **k** 1800 **l** 2500
m 320 **n** 400 **o** 21 000 **p** 210 000

4 D **5** D

6 **a** F **b** T **c** T **d** F
e T **f** F **g** F **h** T
i F **j** T **k** T **l** F

Exercise 5-02

1 **a** $18 \times 12 = 18 \times (10 + 2)$
$= 18 \times 10 + 18 \times 2$
$= 180 + 36$
$= 216$

b $16 \times 9 = 16 \times (10 - 1)$
$= 16 \times 10 - 16 \times 1$
$= 160 - 16$
$= 144$

c $21 \times 11 = 21 \times (10 + 1)$
$= 21 \times 10 + 21 \times 1$
$= 210 + 21$
$= 232$

d $15 \times 8 = 15 \times (10 - 2)$
$= 15 \times 10 - 15 \times 2$
$= 150 - 30$
$= 120$

2 **a** 135 **b** 162 **c** 234 **d** 279
e 128 **f** 104 **g** 176 **h** 112
i 243 **j** 360 **k** 304 **l** 261

3 **a** 187 **b** 264 **c** 165 **d** 319
e 300 **f** 168 **g** 288 **h** 396
i 480 **j** 132 **k** 108 **l** 209

4 **a** $6 \times 22 = 6 \times (20 + 2)$
$= 6 \times 20 + 6 \times 2$
$= 120 + 12$
$= 132$

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b $12 \times 19 = 12 \times (20 - 1)$
$= 12 \times 20 - 12 \times 1$
$= 240 - 12$
$= 228$

c $40 \times 41 = 40 \times (40 + 1)$
$= 40 \times 40 + 40 \times 1$
$= 1600 + 40$
$= 1640$

d $25 \times 48 = 25 \times (50 - 2)$
$= 25 \times 50 - 25 \times 2$
$= 1250 - 50$
$= 1200$

5 a 160 **b** 204 **c** 1188 **d** 816
e 174 **f** 252 **g** 270 **h** 539

6 D

Exercise 5-03

1 a $u \div u = 1$ **b** $p + p = 2 \times p$
c $a + (-a) = 0$ **d** $p \times 0 = 0$
e $u + 0 = u$ **f** $-a \times (-a) = a^2$

2 a $3w$ **b** b^2 **c** $9acd$ **d** $6a$
e $\frac{e}{5}$ **f** $2f$ **g** $7m$ **h** $6wh$
i $3m$ **j** $4f^2$ **k** d **l** $10abc$
m $\frac{16}{n}$ **n** $2g^2$ **o** $9x$ **p** h
q $8q$ **r** $8mn$ **s** $-12pr^2$ **t** $3a + 2b$
u a^3b^2

3 a $\frac{16}{5a}$ **b** $7 + 3n$ **c** $\frac{e-6}{2}$
d $4s - 8$ **e** $c^2 + d^2$ **f** $\frac{k}{9} + m$
g $\frac{k}{9+m}$ **h** $12 - \frac{r}{2}$ **i** $7 + 7u^2$

4 A

5 a $x \times y$ **b** $2 \times n \div r$ **c** $1 \times x = x$

6 B

7 a $12 \times r \times s$ **b** $-2 \times n \times n$
c $8 \div f$ **d** $r \times r + t \times t$
e $9 \times a \times a \times b$ **f** $5 \times m \times n - 2 \times a$
g $(x + 1) \div 3$ **h** $q \times q \times q$
i $14 - 2 \times d \times d$ **j** $-4 \times c \div 5$
k $x \times x \times y \times y$ **l** $4 \times j - 8 \div k$

8 D

Exercise 5-04

1 a $N + N$ **b** $\frac{N}{2}$ **c** $3N$ **d** $N - 7$
e $\frac{N}{10}$ **f** $N - 1$ **g** $5N$ **h** $N + 21$
i $N - 1$ **j** $\frac{N}{8}$ **k** $N + 3$ **l** N^3
m $\sqrt{N}$

2 No difference except the N would be replaced by the X. The letter used makes no difference to the expression.

3 a $x + y + z$ **b** $b - c$ or $c - b$ **c** uv
d uv^2 **e** $\frac{C}{d}$ **f** $\frac{(m+n)}{2}$
g $\sqrt{10a}$ **h** $b - 3$ **i** $5 - c$
j $c - 5$ **k** $e \div 3$ **l** t^2
m $9xz$ **n** $k - 12$
o $\frac{1}{2}(20 - g)$ or $\frac{1}{2}(g - 20)$

4 a $b + g$ **b** $4n$ **c** $d - r$
d $\$2s$ **e** $\$a \div 3$ **f** $2x + 2y$ or $2(x + y)$
g xy **h** $\$(4m + 2i)$

5 C

Mental skills 5A

2 a 160 **b** 130 **c** 60 **d** 140
e 210 **f** 270 **g** 190 **h** 220
i 300 **j** 170 **k** 80 **l** 290

Exercise 5-05

1 a 15 **b** 51 **c** 122 **d** −18
2 a 40 **b** 58 **c** 17 **d** 0
3 a 8 **b** 44 **c** −16 **d** 2
4 a 16 **b** −19 **c** 101 **d** 36
5 a 73 **b** −53 **c** −8 **d** 10
6 a 5 **b** 11 **c** −3 **d** 19
7 a 22 **b** 26 **c** 4 **d** 34
8 a 16 **b** −3 **c** −24
9 a 10 **b** 22 **c** −50
10 a 14 **b** 35 **c** −28
11 \$3740 **12** 27 m^2 **13** $10\frac{1}{2}$
14 86°F **15** \$149

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Exercise 5-06

1 **a** $x = 3$ **b** $x = 9$ **c** $a = 5$
d $m = 20$ **e** $b = 10$ **f** $c = 4$
g $k = 6$ **h** $d = 13$ **i** $m = 15$
j $x = 5$ **k** $y = 15$ **l** $n = 25$

2 B

3 **a** $x = 5$ **b** $p = 7$ **c** $k = 5$
d $x = 4$ **e** $x = 3$ **f** $x = 8$
g $m = 28$ **h** $a = 12$ **i** $d = 2$
j $n = 1$ **k** $r = 15$ **l** $k = 11$
m $p = -2$ **n** $r = 10$ **o** $y = 15$
p $x = 2$

Exercise 5-07

1 **a** $w = 7$ **b** $x = 18$ **c** $m = 16$
d $p = 18$ **e** $x = 9$ **f** $k = 9$
g $m = -3$ **h** $y = 10$ **i** $d = -9$

2 **a** $m = 6$ **b** $n = 4$ **c** $k = 11$
d $c = 16$ **e** $x = 9$ **f** $x = -9$
g $d = 6$ **h** $h = -5$ **i** $a = 7$

3 **a** $p = 11$ **b** $m = 13$ **c** $x = 17$
d $y = 60$ **e** $k = 24$ **f** $n = 21$
g $d = 18$ **h** $y = 9$ **i** $m = 4$

4 **a** $m = 12$ **b** $d = 10$ **c** $x = 40$
d $k = 48$ **e** $x = 60$ **f** $a = -8$
g $k = 30$ **h** $n = -55$

5 **a** $m = 19$ **b** $p = 8$ **c** $p = 19$
d $n = -8$ **e** $x = 10$ **f** $n = 9$
g $x = 7$ **h** $y = -4\frac{1}{2}$ **i** $h = 7$
j $x = 3$ **k** $k = -10$ **l** $n = 0$

Exercise 5-08

1 **a** $x = 5$ **b** $x = 3$ **c** $x = 2$
d $x = 4$ **e** $d = 9$ **f** $x = -8$
g $x = 2$ **h** $x = 1$ **i** $x = 4$
j $x = 3$ **k** $x = -1$ **l** $x = -2$

2 D

3 **a** $x = 7$ **b** $x = 8$ **c** $x = 3$
d $x = 11$ **e** $x = 2$ **f** $x = 2$
g $x = 3$ **h** $x = 5$ **i** $x = -5$
j $x = 9$ **k** $x = -2$ **l** $x = -1$

4 D

5 **a** $x = 8$ **b** $m = 9$ **c** $k = 20$
d $a = 16$ **e** $n = 16$ **f** $h = -35$
g $m = 6$ **h** $k = 15$ **i** $x = -12$
j $a = 9$ **k** $h = -15$ **l** $x = 14$

Mental skills 5B

2 **a** 108 **b** 243 **c** 414 **d** 171
e 306 **f** 567 **g** 189 **h** 135

4 **a** 187 **b** 242 **c** 418 **d** 440
e 275 **f** 209 **g** 594 **h** 341

6 **a** 528 **b** 180 **c** 348 **d** 372
e 624 **f** 216 **g** 312 **h** 444

Exercise 5-09

1 **a** $t = \$11$ **b** $x = \$0.48$ **c** $n = 55$ **d** $y = 10$

2 **a** B, 299 **b** A, 1140 mL **c** A, 39 **d** D, 53

3 **a** $4a + 12 = 240$, $a = 57$
b $2l + 17 + 17 = 100$, $l = 33$
c $6y - 13 = 95$, $y = 18$
d $\frac{11b}{2} = 44$, $b = 8$
e $7n - 184 = 2000$, $n = 312$
f $200 + \frac{x}{5} = 750$, $x = \$2750$

4 5 **5** 391 **6** A

Power plus

1 **a** $5a - 3b$ **b** $-4m - 10n$ **c** $4j - k + 4$
d $5b^2$ **e** $3x^2 - 6x$ **f** $5xy + 2yz + 4xz$

2 **a** -2 **b** -24 **c** 10 **d** 9
e 8 **f** 4 **g** 7 **h** 4

3 **a** **i** $P = 2l + 2b$ or $2(l + b)$
ii $A = lb$
b **i** $P = 2 + y + x + y + 2 + x$ or $2(x + 2 + y)$
$= 4 + 2x + 2y$
ii $A = x(2 + y)$
c **i** $P = p + q + r$
ii $A = \frac{pq}{2}$
d **i** $P = m + 5 + m + 3 + n$
$= 8 + 2m + n$
ii $A = mn + \frac{1}{2} \times 3 \times n = mn + \frac{3n}{2}$

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