S2 Final Assessment Revision Booklet A MP3

Contents

Special Numbers

Exercise 1

1. Write down the first six (non-zero) multiples of :-

   (a) 5 (b) 3 (c) 9 (d) 12

2. From the list of numbers, say which envelopes each number could be placed in.
   (Some numbers can go in more than one envelope).

   10, 12, 13, 16, 20, 24, 25, 28, 29, 30, 32, 35, 39, 40, 42, 45, 50, 51, 52, 56.

multiples of 2	multiples of 3	multiples of 4	multiples of 5	multiples of 6	multiples of 7	multiples of 8	multiples of 9

3. Find the lowest common denominator (l.c.m.) of :-

   (a) 2 and 3 (b) 3 and 5 (c) 6 and 9 (d) 5 and 10.

4. Find the l.c.m of :-

   (a) 2, 3 and 4 (b) 2, 4 and 6 (c) 3, 5, and 6 (d) 4, 5 and 7.

5. Baby frog croaks every 3 seconds.
   Mummy frog croaks every 6 seconds.
   Daddy frog croaks every 9 nine seconds.

   How many seconds pass before they all croak together ?

Exercise 2

1. Write down the :-

   (a) three factors of 4 (b) two factors of 5 (c) four factors of 27 (d) nine factors of 36

2. From the list of numbers, say which envelopes each number could be placed in.
   (*Some numbers can go in more than one envelope*).

   1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20.

factors of 8	factors of 12	factors of 18	factors of 20	factors of 24	factors of 30	factors of 36	factors of 51

3. Find the highest common factors of :-

   (a) 8 and 10 (b) 12 and 15 (c) 29 and 37 (d) 36 and 48.

4. Find the h.c.f. of
   (a) 6, 8 and 12 (b) 8, 12 and 24 (c) 5, 25 and 40 (d) 24, 36 and 54.

5. Find the l.c.m. of 24 and 48.

Special Numbers

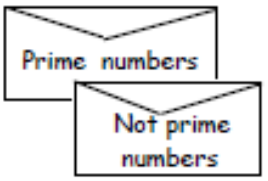
Exercise 3

1. Copy and complete :- A prime number has exactly ..... factors.

2. List all the primes numbers between :- (a) 10 and 20 (b) 50 and 60.

3. From the list of numbers, say which envelope each number could be placed in.

   1, 4, 5, 6, 9, 11, 18, 21, 23, 27, 33, 35, 37, 39, 49, 51.



4. Each of the following numbers are prime numbers, true or false ?

   (a) 13572 (b) 55555 (c) 12345 (d) 54321.

5. Make a factor tree to find all the prime factors of :-

   (a) 16 (b) 56 (c) 128 (d) 510.

Revision Exercise

1. Write down all the multiples of :-

   (a) 3, between 20 and 40 (b) 8, between 70 and 100.

2. Find the lowest common multiple of :-

   (a) 2 and 7 (b) 6 and 8 (c) 12 and 16 (d) 3, 4 and 6.

3. Write down all the factors of :-

   (a) 13 (b) 20 (d) 27 (d) 40

4. Find the highest common factor of :-

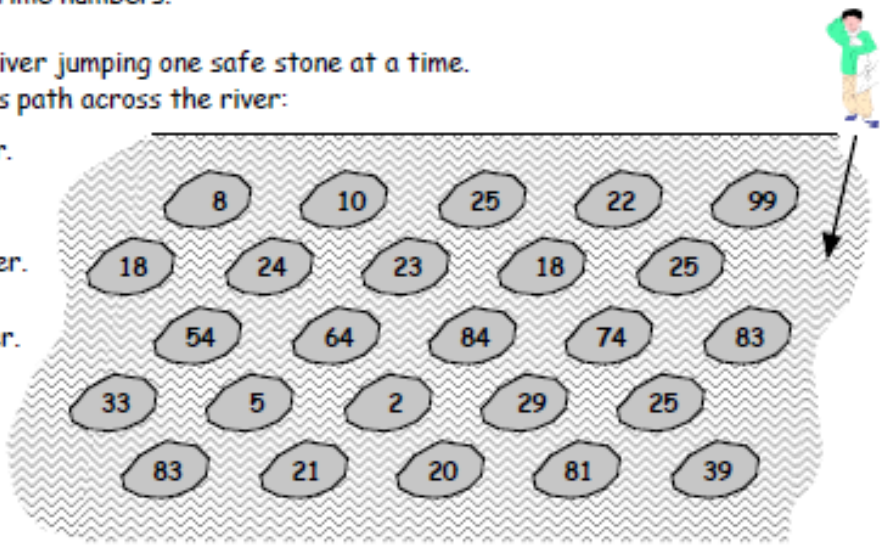
   (a) 10 and 12 (b) 20 and 24 (c) 12 and 48 (d) 12, 18 and 36.

5. Write down the first ten prime numbers.

6. James can only cross the river jumping one safe stone at a time.
   James will have to take this path across the river:

   Start with a square number.
   Jump to a prime number.
   Jump to a multiple of 7.
   Jump to a new prime number.
   Jump to a factor of 15.
   Jump to anew prime number.

   Write down the list of numbers to safely cross the river.



Answers

Chapter 13 Exercise 1

1. a 5, 10, 15, 20, 25, 30 b 3, 6, 9, 12, 15, 18
   c 9, 18, 27, 36, 45, 54 d 12, 24, 36, 48, 60, 72

2.

2	10, 12, 16, 20, 24, 28, 30, 32, 40, 42, 50, 52, 56
3	12, 24, 30, 39, 42, 45, 51
4	12, 16, 20, 24, 28, 32, 40, 52, 56
5	10, 20, 25, 30, 35, 40, 45, 50
6	12, 24, 30, 42
7	28, 35, 42, 56
8	16, 24, 32, 40, 56
9	45

3. a 6 b 15 c 18 d 10
4. a 12 b 12 c 30 d 140
5. 18 secs

Chapter 13 Exercise 2

1. a 1, 2, 4 b 1, 5
   c 1, 3, 9, 27 d 1, 2, 3, 4, 6, 9, 12, 18, 36

2.

8	1, 2, 4, 8
12	1, 2, 3, 4, 6, 12
18	1, 2, 3, 6, 9, 18
20	1, 2, 4, 5, 10, 20
24	1, 2, 3, 4, 6, 8, 12
30	1, 2, 3, 5, 6, 10, 15
36	1, 2, 3, 4, 6, 9, 12, 18
51	1, 3, 17

3. a 2 b 3 c 1 d 12
4. a 2 b 4 c 5 d 6
5. 1 cm = 48 hcf 24

Chapter 13 Exercise 3

1. Two
2. a 11, 13, 17, 19 b 53, 59
3. PRIME = 5, 11, 23, 37
4. a divisible by 2 b divisible by 5
   c divisible by 5 d divisible by 2, 5, 10
5. a (2 x 2 x 2 x 2) b (2 x 2 x 2 x 7)
   c (2 x 2 x 2 x 2 x 2 x 2 x 2)
   d (2 x 3 x 5 x 17)

Chapter 13 Revision Exercise

1. a 21, 24, 27, 30, 33, 36, 39 b 72, 80, 88, 96
2. a 14 b 24 c 48 d 12
3. a 1, 13 b 1, 2, 4, 5, 10, 20
   c 1, 3, 9, 27 d 1, 2, 4, 5, 8, 10, 20, 40
4. a 2 b 4 c 12 d 6
5. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29
6. 25 –> 23 –> 49 –> 2 –> 5 –> 83

Metric Measurement

Exercise 1

1. How many :-
   (a) millimetres in a centimetre ?
   (b) centimetres in a metre ?
   (c) metres in a kilometre ?
   (d) millimetres in a metre ?
   (e) centimetres in a kilometre ?
   (f) millimetres in a kilometre ?

2. Change :-
   (a) 5 cm to mm
   (b) 8 mm to cm
   (c) 15 km to m
   (d) 10 m to cm
   (e) 15 km to m
   (f) 5·5 cm to mm
   (g) 8·6 m to cm
   (h) 15·1 cm to mm
   (i) 10·05 cm to mm
   (j) 7·5 km to m
   (k) 0·1 m to mm
   (l) 0·001 km to mm
   (m) Look at the sign above. How many kilometers to Glasgow ?

3. Change :-
   (a) 400 cm to m
   (b) 3000 m to km
   (c) 80 000 cm to km
   (d) 5000 mm to m
   (e) 100 000 mm to m
   (f) 1 million mm to km.

4. Which is the shortest in each of the following :-
   (a) 0·5 km, 300 m or 4000 cm
   (b) 100 000 mm, 5000 m or 10 km
   (c) 0·0001 km, 0·11 m or 10·1 cm
   (d) 1 million m, 100 000 cm or 1 km ?

5. A 6 metre length of wood is cut in **three places** such that all the pieces are of the same length.
   What is the length of each piece in millimetres.

Metric Measurement

Chapter 10 Exercise 1

1. a 10 b 100 c 1000
   d 1000 e 100 000 f 1 000 000
2. a 50 mm b 18 mm c 15 000 m
   d 1000 cm e 1500 m f 55 mm
   g 860 cm h 151 mm i 100·5 mm
   j 7500 m k 100 mm l 1000 mm
   m 10 km
3. a 4 m b 3 km c 0·8 km
   d 5 m e 100 m f 1 km
4. a 4000 cm b 100 000 mm c 0·0001 km
   d 1 km
5. 1500 mm

Time

Exercise 1

1. Change the following to 24 hour times :-

(a) 8·30 am	(b) 1·50 pm	(c) 4·20 pm	(d) 9·01 pm
(e) 6·10 am	(f) 9·45 pm	(g) 11·12 pm	(h) 12·10 pm
(i) 7·08 pm	(j) 11·59	(k) 11·59 am	(l) midnight
(m) Quarter past nine at night		(n) Half past two in the afternoon	
(o) Quarter to six in the evening		(p) Twelve minutes to midnight.	

2. Change the following to 12 hour times :-

(a) 0440	(b) 1610	(c) 2205	(d) 1910
(e) 1130	(f) 0010	(g) 1255	(h) 1010
(i) 1706	(j) 0101	(k) 2010	(l) 0000

Exercise 2

1. How long is it from :-

(a) 3·05 pm to 5·20 pm	(b) 5·15 am to 8·55 am	(c) 6·30 pm to 8·05 pm
(c) 9·50 pm to 11·15 pm	(d) 1430 to 1945	(e) 0950 to 1605
(f) 1442 to 2020	(g) Quarter to six in the morning until five past nine at night.	

2. Kay is not sure which video to watch.

   (a) If she starts to watch one of the videos at 8·35 pm, list the finishing time of each video.

   (b) Kay decides to watch all three videos. What time would the last video finish ?

A	B	C
2 hrs 40 mins	1 hr 25 mins	2 hrs 55 mins

3. New york is 5 hours behind our time (ie Glasgow time 6 pm → New York time 1 pm).

   An aeroplane leaves Glasgow for New York at 1·45 pm with a flight time of 6 hours 35 mins.

   What is the time in New York when the plane lands ?

Time

Exercise 3

1. Round the following times to 1 decimal place :-

   (a) 8·16 secs (b) 15·05 secs (c) 20·97 secs (d) 0·709 secs

2. In a Formula 1 trial the following times were recorded;

   Jenson : 54·62 secs, Cooltad : 54·09 secs, Chewmaker : 54·1 secs, Hall : 54·3 secs.

   List the drivers in order, pole position (winner) first.

3. State the times shown in the following stopwatches :-

   (a) 

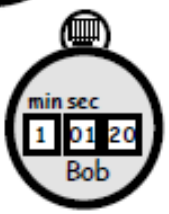
   (b) 

   (c) 

   (d) 

4. Ben and Bob came second and third in a sprint.

   (a) By how much did Ben beat Bob ?

   (b) James beat Bob by 1·5 secs.

   (i) What was James' time

   (ii) By how much did James win the race ?

   (c) Write your answer to (b), (ii) as a fraction in thousandths of a second.

Revision Exercise

1. Write the following in 24 hour time :-

   (a) 9·20 am (b) 4·50 pm (c) 11·05 pm (d) 6·15 pm

2. Write the following in 12 hour time :-

   (a) 0110 (b) 1715 (c) 2310 (d) 0001

3. A train left the station at 1105 and arrived at its destination at 1750. How long was the journey ?

4. A paper round started at 6·25 am and took 1 hour 50 mins. What time did the round finish ?

5. Shown is a train timetable

Glasgow	09 00	11 30	14 16	17 53	
Garrowhill	09 09	11 39	-- --	-- --	-- --
Blairhill	09 12	11 42	-- --	-- --	23 03
Sunnyside	09 14	11 44	-- --	-- --	23 09
Airdrie	09 17	11 47	14 33		23 12

-- -- denotes express train and does not stop at the station.

   (a) How long does it take the first train from Garrowhill to Airdrie ?

   (b) The last train takes 16 minutes from Glasgow to Airdrie. What time does the train leave ?

   (c) What time will the 1753 express from Glasgow arrive at Airdrie ? (Look at the 1416 express)

Answers

Chapter 3 Exercise 1

1. a 0830 b 1350 c 1620 d 2101
   e 0610 f 2145 g 2312 h 1210
   i 1908 j 2359 k 1159 l 0000
   m 2115 n 1430 o 1745 p 2348
2. a 4·40 am b 4·10 pm c 10·05 pm d 7·10 pm
   e 11·30 am f 12·10 am g 12·55 pm h 10·10 am
   i 5·06 pm j 1·01 am k 8·10 pm l midnight

Chapter 3 Exercise 2

1. a 2 hrs 15 mins b 3 hrs 40 mins
   c 1 hr 35 mins d 1 hr 25 mins
   e 5 hrs 15 mins f 6 hrs 15 mins
   g 5 hrs 38 mins h 15 hrs 20 mins
2. a A = 11·15 pm
   B = 10·00 pm
   C = 11·30 pm
   b 3·35 am
3. 3·20 pm

Chapter 3 Exercise 3

1. a 8·2 b 15·1 c 21·0 d 0·7
2. Cooltad, Chewmaker, Hall, Jenson
3. a 5 mins 15·2 secs b 5 mins 1·13 secs
   c 1 hr 15 mins 30·75 secs d 1 hr 1 min 3·4 secs
4. a 1·35 secs
   b (i) 0 min 59·7 secs (ii) 0·25 secs

Chapter 3 Revision Exercise

1. a 0920 b 1650 c 2305 d 1815
2. a 1·10 am b 5·15 pm c 11·10 pm d 12·01 am
3. 6 hrs 45 mins
4. 8·15 am
5. a 8 mins b 2256 c 1810

Fractions

Exercise 1 Revision

1. Find two equivalent fractions for each of the following :-

   a $\frac{1}{2}$ b $\frac{1}{3}$ c $\frac{1}{8}$ d $\frac{1}{100}$

   e $\frac{2}{3}$ f $\frac{2}{6}$ g $\frac{3}{7}$ h $\frac{11}{12}$.

2. Simplify fully (where possible) :-

   a $\frac{2}{4}$ b $\frac{6}{9}$ c $\frac{15}{21}$ d $\frac{24}{36}$

   e $\frac{11}{88}$ f $\frac{75}{100}$ g $\frac{17}{51}$ h $\frac{122}{144}$.

3. Write each of the following as fractions and simplify fully :-

   a At first year assembly there were 124 boys out of 240 pupils.

   b At a school fire drill there were 1650 people in the playground. There were one hundred and fifty adults.

Exercise 2 Top-Heavy & Mixed Fractions

1. Change each of the following **top heavy fractions** to **mixed numbers** :-

   a $\frac{3}{2}$ b $\frac{11}{2}$ c $\frac{17}{3}$ d $\frac{49}{6}$

   e $\frac{111}{10}$ f $\frac{73}{9}$ g $\frac{204}{6}$ h $\frac{161}{12}$.

2. 51 kg of potatoes are packed evenly into 9 bags. What is the weight of each bag ?

3. Change each of these into **mixed numbers** and **simplify** fully where possible :-

   a $\frac{18}{4}$ b $\frac{33}{6}$ c $\frac{145}{10}$ d $\frac{68}{8}$

   e $\frac{122}{4}$ f $\frac{315}{25}$ g $\frac{3333}{6}$ h $\frac{147}{12}$.

4. a How many $\frac{1}{2}$ pizza slices can you get from $5\frac{1}{2}$ pizzas ?

   b How many $\frac{1}{3}$ pizza slices can you get from $7\frac{2}{3}$ pizzas ?

   c How many $\frac{1}{6}$ pizza slices can you get from $4\frac{1}{2}$ pizzas ?

Fractions

5. Change each of the following mixed numbers to top heavy fractions :-

a $3\frac{1}{6}$ b $6\frac{1}{3}$ c $1\frac{2}{3}$ d $13\frac{4}{6}$

e $8\frac{3}{4}$ f $11\frac{2}{11}$ g $17\frac{3}{7}$ h $81\frac{3}{6}$.

Exercise 3 Adding & Subtracting (basic) Fractions

1. Find and simplify fully where possible :-

a $\frac{1}{2} + \frac{1}{4}$ b $\frac{1}{4} + \frac{1}{4}$ c $\frac{3}{6} + \frac{1}{6}$ d $\frac{7}{11} + \frac{4}{11}$

e $\frac{3}{6} - \frac{1}{6}$ f $\frac{7}{8} - \frac{3}{8}$ g $4\frac{1}{4} + \frac{1}{4}$ h $7\frac{3}{6} + 1\frac{1}{6}$

i $8\frac{3}{8} + 2\frac{1}{8}$ j $9 - 4\frac{1}{4}$ k $7\frac{5}{9} + 2\frac{4}{9}$ l $5\frac{1}{2} - 1\frac{1}{4}$.

2. Two carafes of wine were poured into a punch bowl.

One carafe held $\frac{5}{8}$ a litre of wine and the other held $\frac{1}{8}$ litres.

a How much wine is now in the bowl ?

b How much more wine did the first carafe hold than the second ?

3. A room is $9\frac{3}{4}$ metres long by $6\frac{1}{4}$ metres wide.

a How much **longer** is the length than the breadth ?

b Find the perimeter of the room.

Exercise 4 Adding & Subtracting (harder) Fractions

1. Calculate :-

a $\frac{1}{2} + \frac{1}{4}$ b $\frac{1}{3} + \frac{1}{4}$ c $\frac{3}{6} + \frac{3}{4}$ d $\frac{2}{3} + \frac{3}{8}$

e $\frac{3}{4} - \frac{1}{3}$ f $\frac{7}{8} - \frac{2}{3}$ g $\frac{4}{6} - \frac{2}{7}$ h $\frac{8}{9} + \frac{3}{6}$

i $\frac{1}{12} + \frac{1}{13}$ j $\frac{7}{8} - \frac{9}{11}$ k $\frac{6}{13} + \frac{16}{62}$ l $\frac{5}{6} - \frac{3}{8}$.

2. Find :-

a $5 - 3\frac{1}{2}$ b $12 - 6\frac{1}{14}$ c $6\frac{2}{3} - 1\frac{1}{4}$ d $7\frac{4}{6} - 5\frac{3}{4}$

e $10\frac{7}{8} - 7\frac{2}{3}$ f $81\frac{1}{2} - 77\frac{3}{4}$ g $6\frac{3}{6} - 4\frac{7}{8}$ h $2\frac{1}{2} - 1\frac{7}{9}$.

Answers

Answers to Chapter 9

Exercise 1 – Revision

1. a $^{2}/_{4}$, $^{3}/_{6}$ b $^{2}/_{6}$, $^{3}/_{9}$
   c $^{2}/_{16}$, $^{3}/_{24}$ d $^{2}/_{200}$ $^{3}/_{300}$
   e $^{4}/_{6}$, $^{6}/_{9}$ f $^{4}/_{10}$, $^{6}/_{15}$
   g $^{6}/_{14}$, $^{9}/_{21}$ h $^{22}/_{24}$, $^{33}/_{36}$
2. a $^{1}/_{2}$ b $^{2}/_{3}$ c $^{5}/_{7}$ d $^{2}/_{3}$
   d $^{1}/_{8}$ f $^{3}/_{4}$ g $^{1}/_{3}$ h $^{61}/_{72}$
3. a $^{124}/_{240} = {}^{31}/_{60}$ b $^{150}/_{1650} = {}^{1}/_{11}$

Exercise 2 – Top-Heavy and Mixed Fractions

1. a $1^{1}/_{2}$ b $6^{1}/_{2}$ c $6^{2}/_{3}$ d $8^{1}/_{6}$
   e $11^{1}/_{10}$ f $8^{1}/_{9}$ g $40^{4}/_{5}$ h $13^{5}/_{12}$
2. $6^{2}/_{3}$ kg
3. a $4^{1}/_{2}$ b $6^{1}/_{2}$ c $14^{1}/_{2}$ d $8^{1}/_{2}$
   e $30^{1}/_{2}$ f $12^{3}/_{5}$ g $555^{1}/_{2}$ h $12^{1}/_{4}$
4. a 11 b 23 c 27
5. a $^{19}/_{6}$ b $^{19}/_{3}$ c $^{5}/_{3}$ d $^{69}/_{5}$
   e $^{35}/_{4}$ f $^{123}/_{11}$ g $^{122}/_{7}$ h $^{408}/_{5}$

Exercise 3 – Add/Subtract Basic Fractions

1. a $^{3}/_{4}$ b $^{1}/_{2}$ c $^{4}/_{5}$ d 1
   e $^{2}/_{5}$ f $^{1}/_{2}$ g $4^{1}/_{2}$ h $8^{4}/_{5}$
   i $10^{1}/_{2}$ j $4^{3}/_{4}$ k 10 l $4^{1}/_{4}$
2. a $^{3}/_{4}$ litre b $^{1}/_{2}$ litre
3. a $3^{1}/_{2}$ m b 32 m

Exercise 4 – Add/Subtract Harder Fractions

1. a $^{3}/_{4}$ b $^{7}/_{12}$ c $1^{7}/_{20}$ d $1^{1}/_{24}$
   e $^{5}/_{12}$ f $^{5}/_{24}$ g $^{18}/_{35}$ h $1^{22}/_{45}$
   i $^{25}/_{156}$ j $^{5}/_{88}$ k $^{3}/_{4}$ l $^{11}/_{24}$
2. a $1^{1}/_{2}$ b $6^{13}/_{14}$ c $6^{5}/_{12}$ d $2^{1}/_{20}$
   e $3^{5}/_{24}$ f $3^{3}/_{4}$ g $1^{29}/_{40}$ h $^{13}/_{18}$

Patterns

Exercise 1 — Sequences & Patterns

1. Give a rule for each of these sequences :- (*begin with "start at ... and then ....."*).

   a 2, 5, 8, 11, 14, ... **b** 7, 13, 19, 25, ... **c** 25, 20, 15, 10, ...

   d 98, 81, 64, 47, ... **e** 3, 9, 27, 81, ... **f** 1, 6, 36, 216, ...

2. Write down the next two numbers in each sequence from question 1.

3. Find the next two numbers in each sequence :-

   a 7, 9, 11, 13, ... **b** 5, 9, 13, 17, ... **c** 24, 22, 20, ...

   d 70, 58, 46, 34, ... **e** 1, 3, 9, ... **f** 2, 4, 8, 16, ...

4. Shown is the pattern for **square numbers**.
   Write down the first 12 square numbers.

5. A pattern of numbers is defined as :- (2 x 3), (3 x 4), (4 x 5), (5 x 6) ....

   Write down the :- **a** 10^{th} term **b** 1000^{th} term **c** n^{th} term.

Answers

Ch 4 Ex 1 Sequences & Patterns

1. a start at 2 then add 3
   b start at 7 then add 6
   c start at 25 then subtract 5
   d start at 98 then subtract 17
   e start at 3 then times by 3
   f start at 1 then times by 6
2. a 17, 20 b 31, 37 c 5, 0
   d 30, 13 e 243, 729 f 1296, 7776

3. a 15, 17 b 21, 25 c 18, 16
   d 22, 10 e 27, 81 f 32, 64
4. 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144
5. a 11×12 b 1001×1002 c $(n+1) \times (n+2)$

Integers

Exercise 2 DO NOT MARK THE THERMOMETER SCALE.

Use the thermometer scale to help with these questions.

1. What is the temperature that is :-

   (a) 7°C up from 2°C ? (b) 5°C up from 5°C ? (c) 10°C up from 0°C ?

   (d) 5°C down from 7°C ? (e) 12°C down from 15°C ? (f) 7°C down from 0°C ?

   (g) 3°C up from -2°C ? (h) 7°C up from 1°C ? (i) 5°C up from -7°C ?

   (j) 9°C down from 4°C ? (k) 3°C down from -4°C ? (l) 25°C down from -25°C ?

2. Copy and complete using the words "....°C **up**" or "..... °C **down**" :-

   (a) 11°C is **4°C down** from 15°C. (b) -13°C is..... from 5°C.

   (c) 9°C is ..... from -3°C. (d) 6°C is..... from -1°C.

   (e) 3°C is..... from -9°C. (f) -19°C is..... from 5°C.

3. The temperature in Glasgow on Christmas day was 3°C.
   On Boxing Day the temperature had dropped by 5°C.
   What was the temperature on Boxing Day ?

4. The temperature in Moscow yesterday changed as follows :-

Noon	3 p.m.	6 p.m.	9 p.m.	Midnight
2°C	down by 5°C	up by 1°C	down by 8°C	down by 5°C

   What was the temperature at (a) 3 p.m. (b) 6 p.m. (c) Midnight ?

Exercise 3

1. Copy and find :-

   (a) 5 + 4 (b) 5 + (-2) (c) 4 + (-1) (d) 6 + (-6)

   (e) (-2) + 4 (f) (-4) + 1 (g) (-2) + 2 (h) (-9) + 6

   (i) 8 + (-10) (j) (-12) + 15 (k) 13 + (-18) (l) (-9) + 13

   (m) (-2) + (-2) (n) (-5) + (-1) (o) (-9) + (-3) (p) (-6) + (-6)

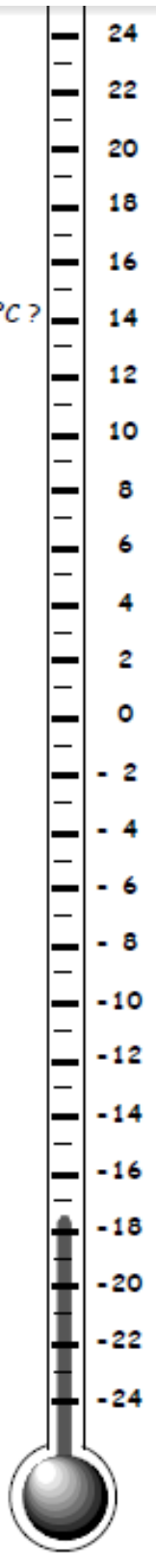
2. Find :-

   (a) 3 - 2 (b) 5 - 8 (c) 2 - 8 (d) 5 - 11

   (e) (-2) - 5 (f) (-4) - 2 (g) (-5) - 5 (h) (-9) - 3

   (i) (-1) - 1 (j) (-3) - 1 (k) (-12) - 5 (l) (-8) - 8

cont'd .....



Answers

Chapter 5 Exercise 2

1. a 9°C b 10°C c 10°C d 2°C
   e 3°C f -7°C g 1°C h 8°C
   i -2°C j -5°C k -7°C l -50°C
2. a 4° down b 18° down c 12° up d 7° up
   e 12° up f 24° down
3. -2°C
4. a -3°C b -2°C c -15°C

Chapter 5 Exercise 3

1. a 9 b 3 c 3 d 0
   e 2 f -3 g 0 h -3
   i -2 j 3 k -5 l 4
   m -4 n -6 o -12 p -12
2. a 1 b -3 c -6 d -6
   e -7 f -6 g -10 h -12
   i -2 j -4 k -17 l -16
3. a 13 b -5 c -4 d 10
   e -7 f -5 g 0 h -40
   i -18 j -12 k -1 l 0

More Integers

Exercise 3 Subtracting Negatives

1. Find :-

a	4 - (-2)	b	8 - (-1)	c	10 - (-5)	d	70 - (-30)
e	(-3) - (-2)	f	(-1) - (-1)	g	(-8) - (-7)	h	(-11) - (-6)
i	(-34) - (-21)	j	(-121) - (-77)	k	73 - (-54)	l	(-243) - (-233).

2. Find :-

a	$4x - (-2x)$	b	$7y - (-4y)$	c	$23k - (-14k)$	d	$156i - (-127g)$
e	$111d - (-88d)$	f	$(-3w) - (-4w)$	g	$(-40j) - 11j - (-20j)$.		

Exercise 4 Multiplying/Dividing Negatives

1. Find :-

a	3 × (-2)	b	8 × (-1)	c	12 × (-5)	d	10 × (-30)
e	(-3) × 4	f	(-1) × 6	g	(-8) × 7	h	(-11) × 4
i	(-9) ÷ 3	j	(-121) ÷ 11	k	72 ÷ (-9)	l	243 ÷ (-3).

2. Find :-

a	(-4) × (-2)	b	(-3) × (-4)	c	(-7) × (-9)	d	(-11) × (-12)
e	15 ÷ (-5)	f	(-30) ÷ (-5)	g	(-40) ÷ (-8)	h	(-243) ÷ (-3).

3. Find :-

a	(-11 + 3) × 2	b	(7 - 11) × 5	c	$(-1)^{17}$	d	(-1) × (-7) × (-2).

Answers

Exercise 3 - Subtracting Negatives

1.	a	6	b	9	c	15	d	100
	e	-1	f	0	g	-1	h	-5
	i	-13	j	-44	k	127	l	-10
2.	a	$6x$	b	$11y$	c	$37k$	d	$283i$
	e	$199d$	f	w	g	$-31j$		

Exercise 4 - Multiplying/Dividing Negatives

1.	a	-6	b	-8	c	-60	d	-300
	e	-12	f	-6	g	-56	h	-44
	i	-3	j	-11	k	-8	l	-81
2.	a	8	b	12	c	63	d	132
	e	-3	f	6	g	5	h	81
3.	a	-16	b	-20	c	-1	d	-14

Percentages

Exercise 3

1. Write each of the following as a fraction and as a decimal :-

(a) 41%	(b) 93%	(c) 7%	(d) 23%
(e) 99%	(f) 11·5%	(g) 1·5%	(h) 8·25%

2. Write these percentages as fractions and simplify :-

(a) 20%	(b) 45%	(c) 15%	(d) 75%
(e) 5%	(f) 35%	(g) $66\frac{2}{3}\%$	(h) 12·5%

Percentages

3. Use a calculator where necessary and change each fraction to a percentage :-

(a) $\frac{8}{25}$ (b) $\frac{12}{40}$ (c) $\frac{5}{8}$ (d) $\frac{11}{80}$

4. Andrew sat a Maths test which comprised of twenty questions each worth two marks.

Andrew scored 32 marks. Write his test score as a percentage.

5. Patel scored $\frac{32}{50}$ for French, $\frac{45}{72}$ for Music, $\frac{18}{25}$ for English and $\frac{22}{30}$ for Maths.

List Patel's subjects in order from best to worst.

Exercise 4

1. Calculate :-

(a) 20% of £60 (b) 40% of 250 kg (c) 60% of £150

(d) 15% of 120 g (e) 8% of £66 (f) 38% of 500 cm

(g) 12% of £80 (h) $12\frac{1}{2}$ % of 240 € (i) $\frac{1}{2}$ % of £8

2. Eighty percent of the 560 videos in a shop are rated 15.

How many videos are rated 15 ?

3. On holiday, Calvin spent 75% of his £450 spending money.

How much did Calvin spend ?

4. Margaret took £350 on holiday and returned with 15% of her money.

How much money did Margaret spend on holiday ?

5. Of the 380 goals scored in a season,
15% were scored by penalties and
70% were scored by the home team.

(a) How many penalties were scored ?

(b) How many were scored by the away team ?

6. An advert makes 2% of an hours television.

How long is the advert (to the nearest second) ?

Answers

Chapter 6 Exercise 3

1. a $\frac{41}{100}$ (0·41) b $\frac{93}{100}$ (0·93)
   c $\frac{7}{100}$ (0·7) d $\frac{23}{100}$ (0·23)
   e $\frac{99}{100}$ (0·99) f $\frac{115}{1000}$ (0·115)
   g $\frac{15}{1000}$ (0·015) h $\frac{825}{10000}$ (0·0825)
2. a $\frac{1}{6}$ b $\frac{9}{20}$ c $\frac{3}{20}$ d $\frac{3}{4}$
   e $\frac{1}{20}$ f $\frac{7}{20}$ g $\frac{2}{3}$ h $\frac{1}{8}$
3. a 32% b 30% c 62·5% d 13·75%
4. 80%
5. English (72%) Maths (70%) French (64%) Music (62·5%)

Chapter 6 Exercise 4

1. a £12 b 100 kg c £90 d 18 g
   e £5·28 f 190 cm g £9·60 h 30€
   i 4p
2. 448
3. £337·50
4. £297·50
5. a 57 b 152
6. 72 secs

Decimals

Exercise 4

1. Try to do the following mentally :-

   (a) 3·7 + 1·2 (b) 5·2 + 3·9 (c) 18·6 – 3·5 (d) 23·6 – 15·8 (e) 15·8 – 1·01

   (f) 5·9 – 4·09 (g) 0·96 – 0·4 (h) 54·8 – 8·91 (i) 0·4 – 0·17 (j) 12·1 – 7·84

2. Try to do the following mentally :-

   (a) A 3·4 kg bag of salt is added to a 1·9 kg bag.
   (i) What is the total weight ?
   (ii) What is the difference in weight ?

   (b) In a formula one race Neesons track times were 21·7 and 22·56 secs.

   (i) What was the combined time ?
   (ii) What was the difference in the times ?

3. Copy and complete :-

   (a) 47·5 + 35·2 (b) 8·17 + 5·96 (c) 1·38 – 1·17 (d) 19·38 – 9·89

   (e) 22·4 + 9·9 (f) 4 – 2·3 (g) 11·7 – 3·45 (h) 5·8 – 4·92

4. A scientist puts 3·9 ml of hydrochloric acid, 4·56 ml of acerbic acid and 9·65 ml of citric acid into a test tube.

   (a) What is the total amount of acid in the test tube ?
   (b) How much more citric than hydrochloric acid is there ?

5. Perimeter is the total distance around the outside of a shape.

   A rectangle has length 12·32 cm and perimeter of 30·8 cm.

   Find the width of the rectangle (show all your working).

Decimals

Exercise 5

1. Write down the answers to the following :-

(a) 8·4 x 10	(b) 9·8 x 10	(c) 7·62 x 10	(d) 18·71 x 10
(e) 6·41 x 100	(f) 0·91 x 100	(g) 4·021 x 100	(h) 0·0054 x 100
(i) 5·213 x 1000	(j) 0·8765 x 1000	(k) 1·0041 x 1000	(l) 4·2 x 1000

2. A crate weighs 47·62 kg. What would be the weight of :-

(a) 10 crates	(b) 100 crates	(c) 1000 crates	(d) 10 000 crates ?

3. There are 1000 millilitres in a litre. How many millilitres are there in :-

(a) 5 litres	(b) 7·62 litres	(c) 0·0415 litres	(d) 0·01 litres ?

Decimals

Exercise 6

1. Write down the answers to the following :-

(a) 28·6 ÷ 10	(b) 19·8 ÷ 10	(c) 7·62 ÷ 10	(d) 187·1 ÷ 10
(e) 64·1 ÷ 100	(f) 10·91 ÷ 100	(g) 4·2 ÷ 100	(h) 0·54 ÷ 100
(i) 521·3 ÷ 1000	(j) 0·8 ÷ 1000	(k) 1·004 ÷ 1000	(l) 9 ÷ 1000

2. The length of 100 pieces of railway track is 412·6 metres long.

   (a) What is the length of each piece in metres ?

   (b) Change your answer to centimetres.

3. There are 1000 squibiis in a martian pound.
   How many martian pounds in :-

   (a) 3497 squibiis (b) 214·6 squibiis

   (c) 21977 squibiis (d) 1 squibii ?

Exercise 7

1. Write down the answers to the following :-

(a) 4·34 × 4	(b) 8·27 × 7	(c) 8·78 × 6	(d) 119·38 × 9
(e) 5·7 x 8	(f) 42·3 x 4	(g) 135·9 x 5	(h) 7 x 37·521

2. Show all your working to the following questions :-

   (a) Fred the monkey eats 3·74 kg of food every day.
   What is the weight of food Fred will eat in :-

   (i) 3 days (ii) a week ?

   (b) Boris the zookeeper gets paid £7·84 an hour.
   How much will Boris earn in :-

   (i) 4 hours (ii) 9 hours ?

   (c) Kevin the Camel eats six 3·71 kg boxes of dates every month.
   Karen the Camel eats five 4·09 kg boxes.
   Who eats the most and by how much ?

Answers

Chapter 2 Exercise 5

1. a 84 b 98 c 76·2 d 187·1
   e 641 f 9·1 g 402·1 h 0·54
   i 5213 j 876·5 k 1004·1 l 4200
2. a 476·2 kg b 4762 kg
   c 47620 kg d 476200 kg
3. a 5000 b 7620 c 41·5 d 10

Chapter 2 Exercise 6

1. a 2·86 b 1·98 c 0·762 d 18·71
   e 0·641 f 0·1091 g 0·042 h 0·0054
   i 0·5213 j 0·0008 k 0·001004 l 0·009
2. a 4·126 m b 412·6 cm
3. a 3·497 b 0·2146 c 21·977 d 0·001

Chapter 2 Exercise 7

1. a 17·36 b 57·89 c 52·68 d 1074·42
   e 45·6 f 169·2 g 679·5 h 262·647
2. a (i) 11·22 kg (ii) 26·18 kg
   b (i) £31·36 (ii) £70·56
   c Kevin by 1·81 kg

Decimals- Rounding

Exercise 1 **Decimal Places & Rounding**

1. Round each of the following to **one** decimal place :-

a	8·63	**b**	3·77	**c**	9·051	**d**	2·949
e	11·123	**f**	54·96	**g**	0·0612	**h**	99·97.

2. Round each of the following to **two** decimal places :-

a	1·768	**b**	12·125	**c**	7·706	**d**	9·0052
e	3·04399	**f**	0·01517	**g**	99·987	**h**	99·999.

3. Round each of these numbers to the number of decimal places in the brackets :-

a	7·845 (2)	**b**	3·1903 (1)	**c**	51·542 (2)	**d**	5·87654 (3).

4. **a** Share £8000 equally between 6 people.
   How much can each person get ?

   b Share one million pounds equally between 9 people.
   How much can each person get ?

   c How much will each person get if you share £$10\frac{1}{4}$ million between 7 people ?

5. Find three places in real life where rounding to decimal places is used.

Answers

Answers to Chapter 1

Exercise 1 - Decimal Places

1. a 8·6 b 3·8 c 9·1 d 2·9
   e 11·1 f 55·0 g 0·1 h 100·0
2. a 1·77 b 12·13 c 7·71 d 9·01
   e 3·04 f 0·02 g 99·99 h 100·00
3. a 7·85 b 3·2 c 51·54 d 5·877
4. a £1333·33 b £111111·11
   c £1464285·71
5. Various

Solving Equations

Exercise 1 Solving Equations

1. Copy each equation and solve to find the value of x :-

a $x + 6 = 11$	b $x + 1 = 23$	c $x + 7 = 6$
d $x + 14 = 14$	e $x - 7 = 8$	f $x - 3 = 2$
g $13 + x = 17$	h $9 + x = 7$	i $17 - x = -17$.

2. Copy each equation and solve to find the value of the letter :-

a $4x = 12$	b $5p = 35$	c $6k = 24$
d $3h = 33$	e $4g = 56$	f $7n = 0$
g $4m = 144$	h $6c = 9$	i $8d = 1$.

3. Find the value of x in the following equations (*Set down ALL your working*).

a $2x + 6 = 14$	b $5x + 4 = 29$	c $4x + 7 = 39$
d $3x + 1 = 31$	e $4x - 8 = 16$	f $7x - 11 = 3$
g $10x - 9 = 41$	h $3x - 6 = 0$	i $11x - 7 = 37$
j $6x - 3 = 12$	k $8x + 12 = 15$	l $9x + 1 = 43$.

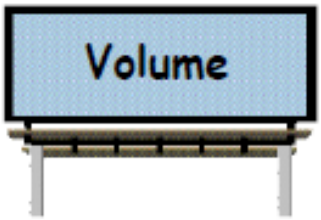
Answers

Ch 5 Ex 1 Solving Equations

1.	a	5	b	22	c	-1
	d	0	e	15	f	5
	g	4	h	-2	i	34
2.	a	3	b	7	c	4
	d	11	e	14	f	0
	g	36	h	$^{3}/_{2}$	i	$^{1}/_{8}$
3.	a	4	b	5	c	8
	d	10	e	6	f	2
	g	5	h	2	i	4
	j	$^{15}/_{6} = 2{\cdot}5$	k	$^{3}/_{8}$		
	l	$^{42}/_{9} = {}^{14}/_{3} = 4\,{}^{2}/_{3}$				

Volume

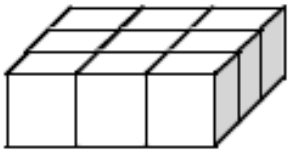
Chapter 16



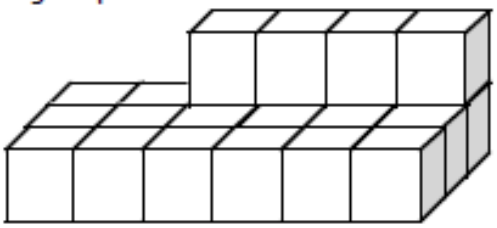
Exercise 1

1. Each shape is made from 1 cm cubes.
   Write the volumes (in cm^3) of each of the following shapes :-

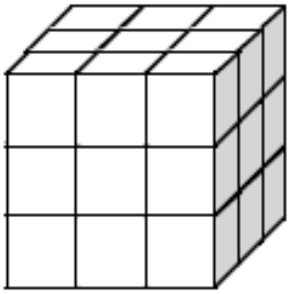
(a)



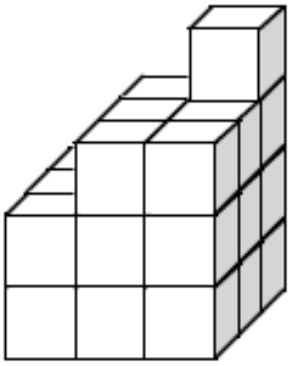
(b)



(c)

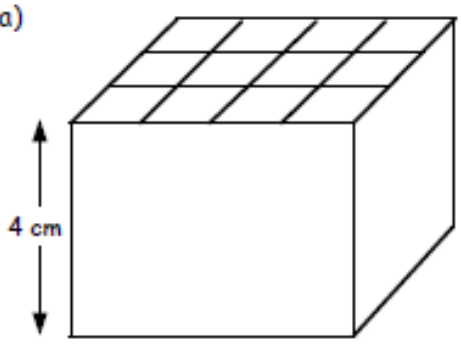


(d)

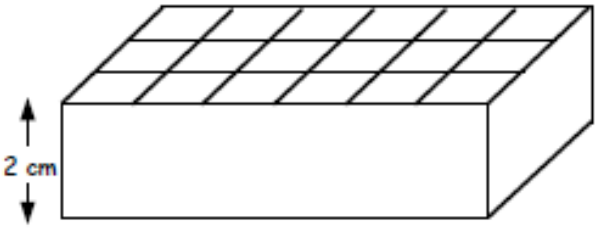


2. Calculate the volume of each cuboid :-
   (Show how you obtained your answers).

(a)



(b)



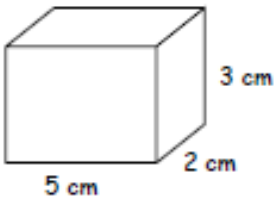
Volume

Exercise 2

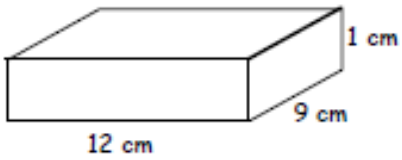
1. Copy and complete :- Volume = length x br..... x h.....

2. Use the formula to calculate the following cuboids :-

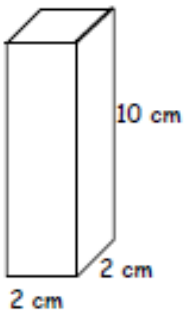
(a)



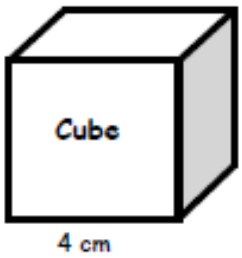
(b)



(c)

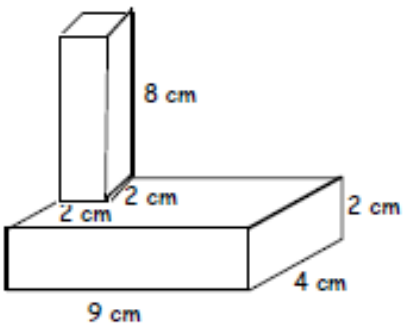


(d)

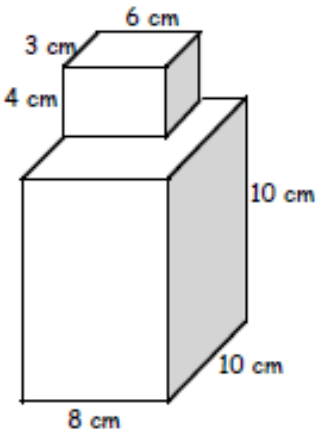


3. Find the total volume of the following shapes :-

(a)

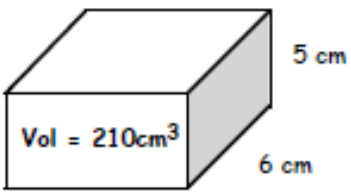


(b)

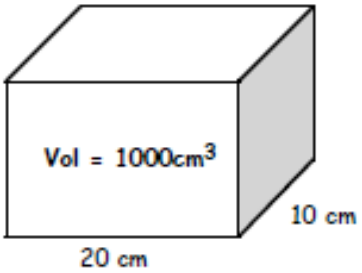


4. Calculate the length of the missing edge of each of the following cuboids :-

(a)



(b)



Volume

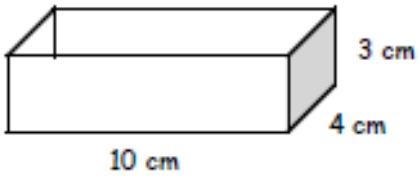
Exercise 3

1. Copy and complete :- Remember

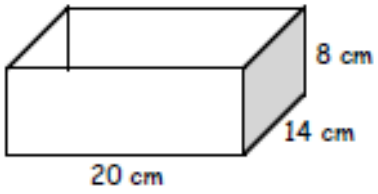
> 1 cm3 = 1 ml
>
> 1000 cm3 = 1000 ml = 1 li...

2. Calculate the volume of each (cm3) and write how many millilitres each will hold.

(a)



(b)

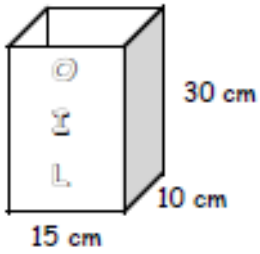


3. Change each of the following to litres :-

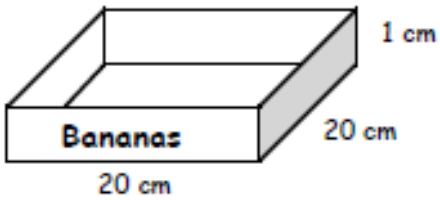
(a) 4000 ml (b) 250 ml (c) 300 000 ml (d) 80 ml

4. Calculate how many litres can each container hold.

(a)



(b)



5. A cube container has side 1 metre. How many litres would it hold ?

Answers

Chapter 16 Exercise 2

1. a Volume = length x breadth x height

2. a 30 cm^3 b 108 cm^3 c 40 cm^3 d 64 cm^3

3. a 104 cm^3 b 872 cm^3

4. a 7 cm b 5 cm

Chapter 16 Exercise 3

1. 1000 cm^3 = 1000 ml = 1 litre

2. a 120 ml b 2240 ml

3. a 4 *l* b 0·25 *l* c 300 *l* d 0·08 *l*

4. a 4·5 *l* b 0·4 *l*

5. 125 *l*