

CAMBRIDGE

CAPS

Study & Master

Maths Online

Grade 6 Activity Book

SAMPLE CONTENT

Powered by  **HOTmaths**TM
interactive maths online

Study & Master

Maths Online

Grade 6 Activity Book

Marelize Barnard

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge cb2 8bs, United Kingdom
One Liberty Plaza, 20th Floor, New York, NY 10006, USA
477 Williamstown Road, Port Melbourne, vic 3207, Australia
314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India
79 Anson Road, #06–04/06, Singapore 079906
The Water Club, Beach Road, Granger Bay, Cape Town 8005, South Africa

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information and Worksheet answers available at www.cambridge.org/9781108675741

© Cambridge University Press 2018

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2018

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

Printed in South Africa by XXX

ISBN 978-1-108-67574-1 Paperback

Editor: Christine de Nobrega
Typesetter: Firelight Studio
Illustrators: Geoff Walton, Claudia Eckard, DiacriTech, Firelight Studio
Cover artwork: Jeff Huang/GettyImages

Acknowledgements

The publisher and authors would like to thank the following individuals and organizations for permission to use their material in either the original or adapted form:

Photographs

Getty Images: p. vi _human; p. 6 Seamartini; p. 8 Linusy; p. 9 Monticello; p. 10 AlexLMX; p. 16 Ippei Naoi; p. 30 nazarkru; p. 31 Jansenkruseproductions; p. 38 Sezeryadigar; p. 39 Tashka2000; p. 43 Ibusca; p. 44 (A) Jirkajec, (B) Photoobjects.net, (C) Antpkr, (D) Colevineyard; p. 49 Asafta; p. 59 Mondadori Portfolio; p. 69 (A) Dan Thornburg / EyeEm, (B) Rastko Belic / EyeEm, (C) C Squared Studios, (D) DNY59, (E) Pogonici, (F) Redi Helga, (G) Sebastock, (H) DawnPoland, (I) Image Source, (J) Magnilion, (K) Daft Lion Studio, (L) Popartic, (M) Antagain, (N) Serts, (O) Leezsnow, (P) Ingenui; p. 96 Ma-k; p. 97 (1) Ibusca, (2) _human, (3), (4) Lemon tm, (5) Monticello, (6) 15790573, (7) Evgenyi Skripnichenko, (8) Tapui, (9) Popovaphoto, (10) VvoeVale, (11) G Cigolini, (12) Hayatikayhan; p. 99 (A) Mbbirdy, (B) Popovaphoto, (C) Dimedrol68; p. 100 (1) Alxpin, (2) Stocknshares; p. 107 Artisteer; p. 114 (1) Asafta, (2) Cabman237

Every effort has been made to trace copyright holders. Should infringements have occurred, please inform the publishers who will correct these in the event of a reprint.

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

Numbers, operations and relationships

Worksheet 1	Bigger numbers	1
Worksheet 2	Counting	2
Worksheet 3	Place value (1)	3
Worksheet 4	Place value (2)	4
Worksheet 5	Comparing and ordering numbers (1)	6
Worksheet 6	Comparing and ordering numbers (2)	7
Worksheet 7	Properties of whole numbers	8
Worksheet 8	Quick calculations	9
Worksheet 9	Number names and rounding	10
Worksheet 10	Prime numbers	12
Worksheet 11	Multiples and factors	13
Worksheet 12	Addition (1)	14
Worksheet 13	Addition (2)	15
Worksheet 14	Subtraction (1)	16
Worksheet 15	Subtraction (2)	17
Worksheet 16	Multiplication (1)	18
Worksheet 17	Multiplication (2)	19
Worksheet 18	Multiplication (3)	20
Worksheet 19	Multiplication (4)	21
Worksheet 20	Multiplication (5)	22
Worksheet 21	Multiplication (6)	24
Worksheet 22	Division (1)	25
Worksheet 23	Division (2)	26
Worksheet 24	Division (3)	27
Worksheet 25	Mixed operations	28
Worksheet 26	Rate	29
Worksheet 27	Ratio	30
Worksheet 28	Ordering and comparing fractions (1)	32
Worksheet 29	Ordering and comparing fractions (2)	33
Worksheet 30	Ordering and comparing fractions (3)	34
Worksheet 31	Ordering and comparing fractions (4)	36
Worksheet 32	Equivalent fractions	37
Worksheet 33	Fraction of a quantity	38
Worksheet 34	Adding and subtracting fractions (1)	39
Worksheet 35	Adding and subtracting fractions (2)	40
Worksheet 36	Adding and subtracting fractions (3)	41
Worksheet 37	Ordering and comparing decimals	42
Worksheet 38	Adding and subtracting decimals (1)	44
Worksheet 39	Adding and subtracting decimals (2)	45
Worksheet 40	Percentages	46
Worksheet 41	Decimals, fractions and percentages	48
Worksheet 42	Problem solving	49
Worksheet 43	Revision	50

Patterns, functions and algebra

Worksheet 44	Number sentences (1)	52
Worksheet 45	Number sentences (2)	53
Worksheet 46	Tables and flow diagrams	54
Worksheet 47	Number sentences, tables and flow diagrams	55
Worksheet 48	Patterns and rules (1)	56

2	Worksheet 49	Patterns and rules (2)	57
	Worksheet 50	Patterns and rules (3)	58
	Worksheet 51	Fibonacci's sequence	59

Space and shape (Geometry)

3	Worksheet 52	Properties of shapes	60
	Worksheet 53	Parallelograms	62
	Worksheet 54	Composite shapes	64
	Worksheet 55	Angles	66
	Worksheet 56	Angles in 2-D shapes	68
	Worksheet 57	3-D objects in everyday life	69
	Worksheet 58	Sorting 3-D objects	70
	Worksheet 59	Pyramids	71
	Worksheet 60	Making 3-D models using nets	72
	Worksheet 61	Nets of 3-D objects	75
Worksheet 62	Faces, edges and vertices of 3-D objects	76	
Worksheet 63	What shape am I?	77	
Worksheet 64	Symmetry (1)	78	
Worksheet 65	Symmetry (2)	79	
Worksheet 66	Enlarging shapes	80	
Worksheet 67	Tessellations	82	
Worksheet 68	Different views (1)	83	
Worksheet 69	Different views (2)	84	
Worksheet 70	Position and movement	86	

Measurement

4	Worksheet 71	Estimating and measuring length	89
	Worksheet 72	Conversions between mm, cm, m and km	90
	Worksheet 73	Working with length	91
	Worksheet 74	Mass (1)	92
	Worksheet 75	Mass (2)	93
	Worksheet 76	Mass (3)	94
	Worksheet 77	Capacity (1)	95
	Worksheet 78	Capacity (2)	96
	Worksheet 79	Reading time	97
	Worksheet 80	12-hour and 24-hour time	99
	Worksheet 81	Elapsed time	100
	Worksheet 82	Using calendars	101
	Worksheet 83	Time zones	102
	Worksheet 84	Temperature	104
	Worksheet 85	Perimeter	106
	Worksheet 86	Volume	107
	Worksheet 87	Area	108

Data handling

5	Worksheet 88	Bar graphs (1)	110
	Worksheet 89	Bar graphs (2)	111
	Worksheet 90	Bar graphs (3)	112
	Worksheet 91	Pictographs (1)	113
	Worksheet 92	Pictographs (2)	114
	Worksheet 93	Pie charts (1)	115
	Worksheet 94	Pie charts (2)	116
	Worksheet 95	Probability	117

	Mental Maths Worksheets		118
--	-------------------------	--	-----

Preface

Mathematics is an integral part of the school curriculum and also of our everyday lives. Mathematics is an important subject where learners learn to investigate patterns, discover and analyse the relationships between physical phenomena and mathematical objects and develop key mental processes such as logical and critical thinking, analytical ability, problem solving and decision making. Furthermore, mathematical reasoning is a key skill that enables learners to reflect on and make sense of solutions to real-life situations.

In the Intermediate Phase (Grades 4–6) the focus is on learners developing the ability to make sense of numbers and to develop various strategies that they can use to fluently and flexibly perform number operations. In this phase, learners start to develop pre-algebraic thinking, learn to make sense of problem situations, develop visual-spatial reasoning and spatial awareness, and develop the ability to analyse, represent and interpret information.

Cambridge HOTmaths along with the *Study & Master Maths Online Workbook Grade 6* is a comprehensive, blended mathematics learning system that combines a set of resources that help learners grasp, comprehend and apply mathematics concepts in their everyday lives. It assists a learner in developing important mathematical skills by encountering mathematics through a multisensory approach that involves creating, playing and doing.

The worksheets in the *Study & Master Maths Online Workbook Grade 6* provide opportunities to regularly revisit and practise a range of concepts. The worksheets follow the content of the *CAPS (Curriculum and Assessment Policy Statement)* and are mapped to the *Cambridge HOTmaths* portal. The worksheets serve to reinforce the online learning. The variety of questions and interesting activities in the worksheets help develop mathematical reasoning, problem solving and other higher-order thinking skills.

The *Cambridge HOTmaths* and *Study & Master Maths Online Workbook Grade 6* blended learning system aims to hone mathematical skills and to develop critical, logical and analytical thinking skills. It envisions growing confident and successful learners who have a love for mathematics.

How to use the Cambridge HOTmaths online platform

One-glance overview of your content and resources



CAPS Grade 6 ▾

Other brands ▾



Dashboard

Tells you what course you are busy with



My course

This is the portal for you to access all of your **CAPS Grade 6** content.

Tells you what lesson you previously worked on



Last lesson accessed

Printable worksheets and solutions



HOTsheet

Decimal place values

WHAT'S WITH ALL THE ZEROS?

Use the widget *Decimals to fractions* to complete these tasks.

TASK 1 How many zeros?

Enter 0.9 in the widget and record its fractional form: 0.9 =

Enter 0.09 in the widget and record its fractional form: 0.09 =

Now predict the fractional form for 0.009: 0.009 =

Predict the fractional form for the decimals below. Use the widget to check your predictions.

	Prediction	Widget result
0.007 as a fraction		
0.07 as a fraction		
0.7 as a fraction		
0.707 as a fraction		
0.077 as a fraction		

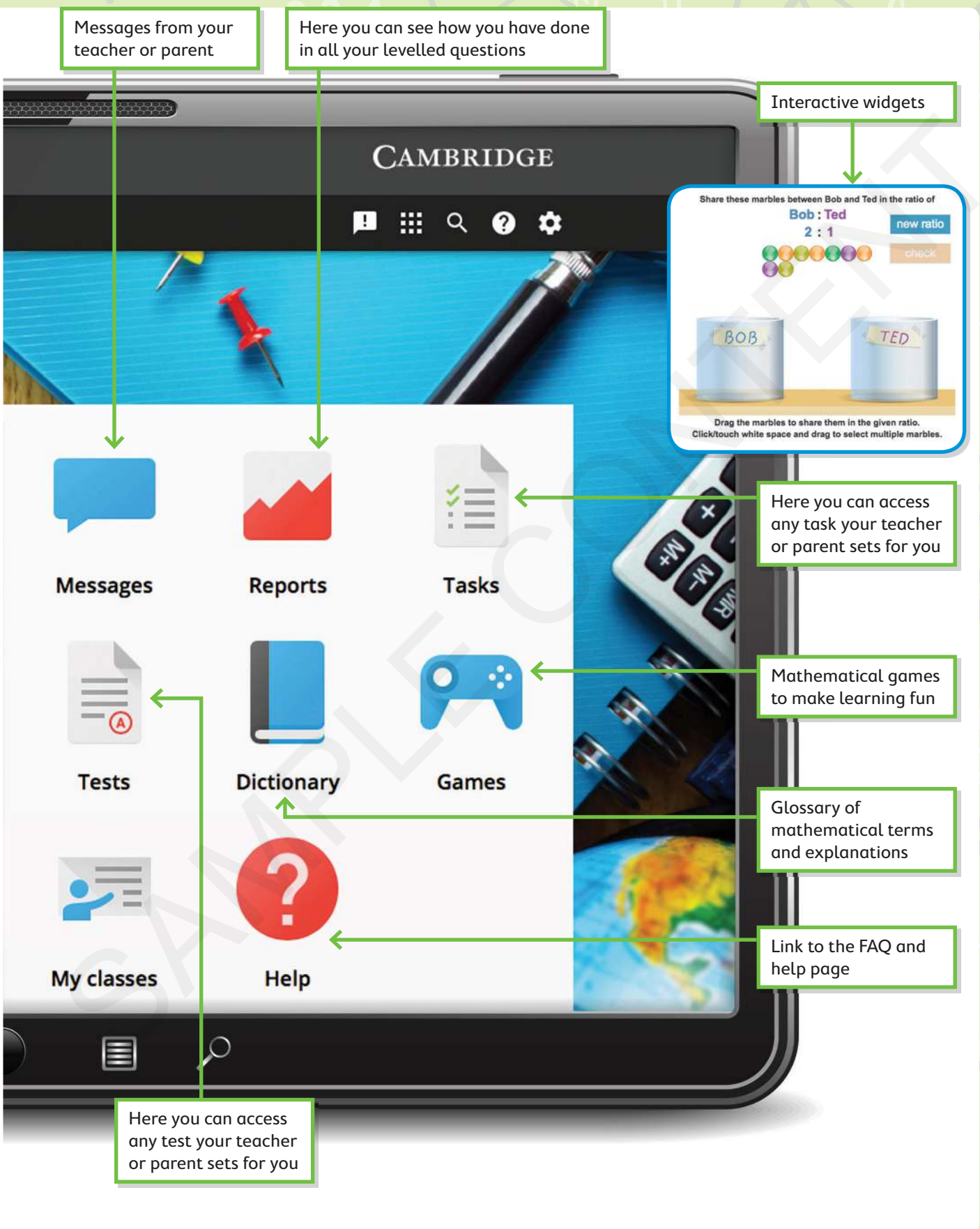
Describe how you can predict how many zeros will be in the denominator when rewriting a decimal as a fraction.

CHALLENGE More zeros!

Use the information in task 1 to predict the fractional form of 0.0007 and 0.00007 and write down a way you could check this prediction.

Authors

Rachel



Messages from your teacher or parent

Here you can see how you have done in all your levelled questions

Interactive widgets

Share these marbles between Bob and Ted in the ratio of

Bob : Ted
2 : 1

new ratio
check

BOB TED

Drag the marbles to share them in the given ratio. Click/touch white space and drag to select multiple marbles.

Here you can access any task your teacher or parent sets for you

Mathematical games to make learning fun

Glossary of mathematical terms and explanations

Link to the FAQ and help page

Here you can access any test your teacher or parent sets for you

Components

Widgets

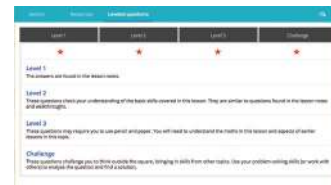
Widgets are found under the Resources tab and are interactive in nature. It helps learning by doing. These interactive widgets allow the learner to practise and apply mathematics concepts hands-on in a playful way. Learners use widgets to create new combinations of numbers and a variation of new tasks to reinforce, revisit and comprehend concepts better. Widgets are referenced in the worksheets in *Study & Master Maths Online Workbook Grade 6*.

Walkthroughs

Walkthroughs are screens that act as a step-by-step guide for learners to walk them through a given problem type. The *Summary* gives steps briefly, whereas in a regular walkthrough a learner would have to select the right answer first and then move ahead to the next question. Walkthroughs are useful in that they break up the lesson and take learners through the different steps of the lesson instead of revealing the entire lesson at one time.

Questions

Questions assess learning that relates to a particular concept. The questions diagnose a learner's learning and understanding. The questions levelled in Level 1 are aimed at tasks directly covered in the lesson. Level 2 questions check the conceptual understanding of the learner, Level 3 is more extensive where a learner might be required to use a pen and pencil, and Challenge tasks are out-of-the-box questions that assess skills from a range of topics.



HOTsheets

HOTsheets are practice sheets based on the topic learners are learning. Practice helps to make concepts clearer to learners. HOTsheets are available for learners and parents to access on the portal. The HOTsheets have various hands-on tasks and games for learners to learn, revisit and reinforce concepts better. The HOTsheets are graphic and pictorial, making them look attractive for young learners. They are followed by complete worked-out solutions in the form of solution sheets.

Dictionary

The Dictionary widget gives all the mathematical terminology for learners to access and refer to. The terms are given in an alphabetical order where each term is explained in simple language and accompanied by an example. A list of mathematical symbols is also given. By clicking on a symbol, the learner will arrive at the name of the symbol (if any), the usage of the symbol and its meaning.



Bigger numbers

Use the *Passwords and Abacuses* widget in *Extending place value*.



Activity 1

Look at the chart of numbers.

10 000	20 000		40 000	50 000
	70 000			100 000
110 000	120 000		140 000	
		180 000	190 000	200 000
210 000	220 000			250 000
		280 000	290 000	
310 000	320 000		340 000	350 000

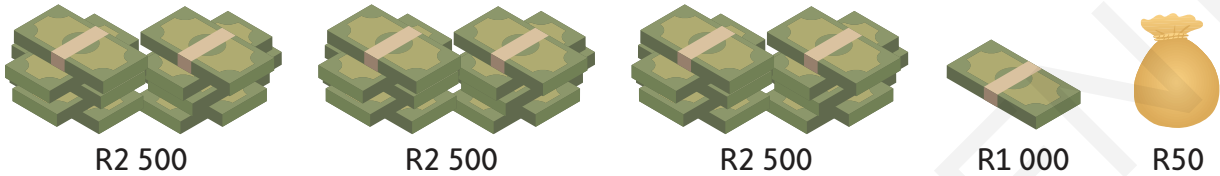
- Complete the chart by filling in the missing numbers.
- In which multiple do you count across? _____
- In which multiple do you count going down? _____
- Divide each number in the bottom row by 100.

- How many 50 000s are there in 350 000? _____
- How many 20 000s are there in 140 000? _____
- What is $\frac{1}{2}$ of 300 000? _____
- What is $\frac{1}{4}$ of 240 000? _____
- What is double 130 000? _____
- Choose any number from the chart. _____
 - Add 1. _____
 - Add 1 000. _____
 - Add 500 000. _____
 - Subtract 25 000. _____

Counting

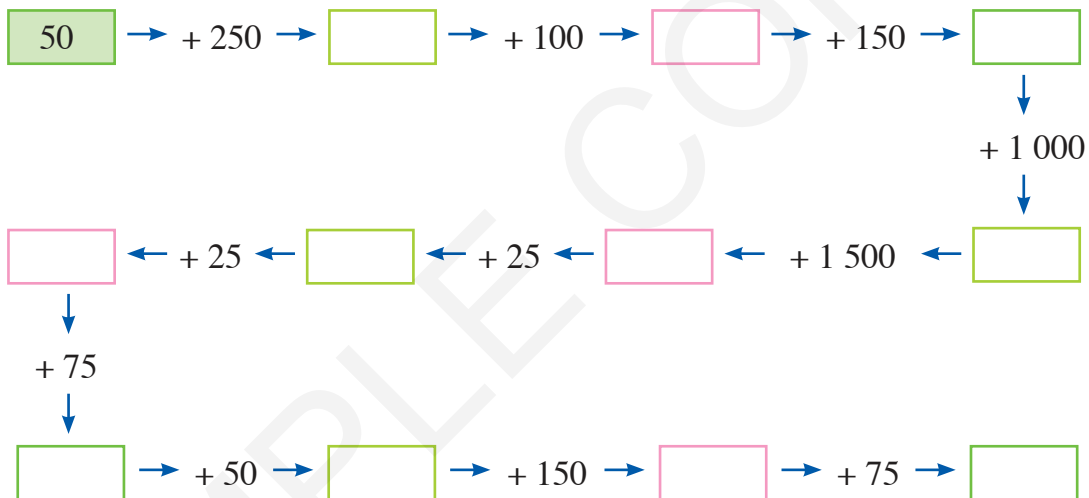
Activity 1

How much money is shown in the picture?



Activity 2

Complete the number chain.



Activity 3

1. Count in thousands from 99 000 to 90 000.

2. Count in ten thousands from 55 000 to 75 000.

3. Count in fifty thousands from 25 000 to 250 000.

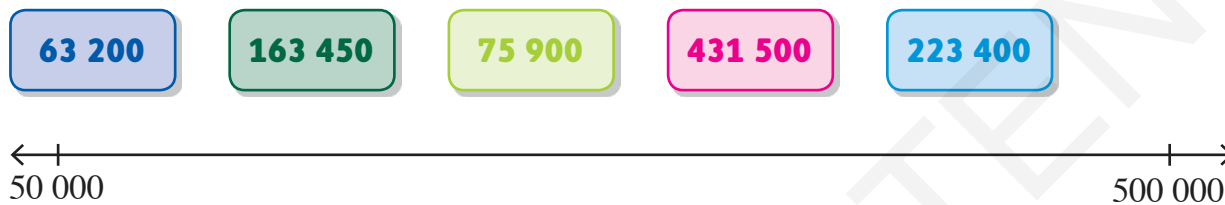
Place value (1)

Use the *Digit cards* widget in *Extending place value*.



Activity 1

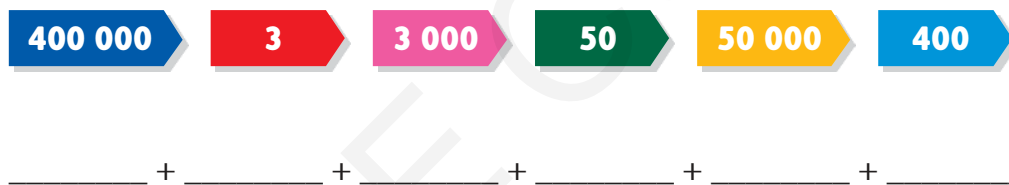
Place the following numbers on the number line.



Activity 2

Write the place value cards in the correct order to represent the number.

1. 453 453



2. 769 504



Activity 3

Write in expanded notation.

1. 3 953 285 _____
2. 320 150 _____
3. 1 587 236 _____
4. 2 896 523 _____

Place value (2)



Use the *Digit cards* widget in *Extending place value*.

Activity 1

What numbers are presented by the place value cards?

1. **800 000** **100** **30** _____

2. **500 000** **20 000** **5 000** **7** _____

3. **60 000** **8 000** **100** **6** _____

4. **200 000** **9 000** **800** **70** **1** _____

5. **300 000** **70 000** **4 000** **100** **8** _____

Activity 2

Write the numbers shown in expanded notation.

1. $40\,000 + 6\,000 + 700 + 8$ = _____

2. $500\,000 + 60 + 2\,000\,000 + 400 + 60\,000$ = _____

3. $50\,000 + 50 + 400\,000 + 7 + 3\,000\,000 + 9\,000$ = _____

4. $70 + 6\,000\,000 + 3 + 900\,000 + 1\,000$ = _____

Activity 3

Give the value of 2 in each number.

1. 67 241 _____
2. 8 920 468 _____
3. 24 619 301 _____
4. 251 635 _____
5. 306 729 _____

Activity 4

Fill in the missing answers.

1. = 5 000 000 + 30 000 + 800 000 + 2 000 + 15

2. $120\,492 =$ $+$ 20 000 $+$ $+$
 $+$

3. $769\,454 = 700\,000 +$ $+$ $+$
 $+$ $+$

4. $456\,387 =$ $+$ $+$ $+$
 300 + 80 +

5. $100\,256\,748 =$ $+$ $+$ $+$
 $+$ $+$ $+$



Study & Master

Maths Online

Grade 6 Activity Book

The *Study & Master Maths Online Grade 6 Activity Book* is a practical workbook supported and powered by Cambridge HotMaths, an online and interactive learning system for individual or classroom use.

This combination of a print and online platform sets out to enhance understanding of mathematical concepts, and to improve exam results in an easy and practical way.

Content covered in *Study & Master Maths Online* is fully aligned with CAPS.

The Activity Book offers:

- Stimulating worksheets filled with targeted practice exercises to make learning Mathematics a fun activity
- Additional exercises to support all topics in the CAPS curriculum.

The online platform offers:

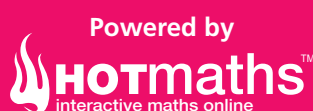
- Lessons with easy-to-understand examples and relevant images
- Applications that provide an engaging exploration of key concepts
- Interactive walkthroughs to guide users in completing an activity
- Assessment exercises that provide instant feedback to users
- A Mathematics dictionary to explain terminology clearly and simply
- Mathematics games that allow users to learn while they play.

The Intermediate Phase Teacher/Parent Guide:

- Provides a printed book with guidance on using the online platform
- Gives access to the online Teacher/Parent section that includes a test generator and class management tools
- Maps the CAPS curriculum to the worksheets and HOTmaths
- Offers sample lesson plans.

Study & Master Maths Online is your key to success!

With the purchase of this book, free access is provided to the online platform at www.hotmaths.co.za valid for a period of one year.



CAMBRIDGE
UNIVERSITY PRESS
www.cambridge.org

