Contents

How to use this book 5

Revision tracker 7

Number and place value

The number system 8

Numbers to 10,000,000 10

Estimation and rounding 12

Negative numbers 14

Calculations

Addition and subtraction 16

Multiplication and division facts and skills 18

Written methods for long multiplication 20

Written methods for short division 22

Written methods for long division 24

Ordering operations 26

Factors, multiples and prime numbers 28

Fractions, decimals and percentages

Simplifying fractions 30

Comparing and ordering fractions 32

Adding and subtracting fractions 34

Multiplying fractions 36

Dividing fractions 38

Decimal equivalents 40

Decimal places 42

Multiplying decimals 44

Dividing decimals 46

Percentage equivalents 47

Ratio and proportion

Ratio and proportion: numbers 48

Ratio and proportion: percentages 50

Scale factors 52

Algebra

Using simple formulae 54

Missing numbers 56

Equations with two unknowns 58

PracticePapers_MathsY6_RG_03_04.indd 3 11/01/2016 14:24

Measurement

Converting units 60

Using measures 62

Perimeter and area 64

Calculating area 66

Calculating volume 68

Geometry

Angles 70

Properties of 2D shapes 72

Drawing 2D shapes 74

3D shapes 76

Circles 78

Positive and negative coordinates 80

Reflecting and translating shapes 82

Statistics

Pie charts 84

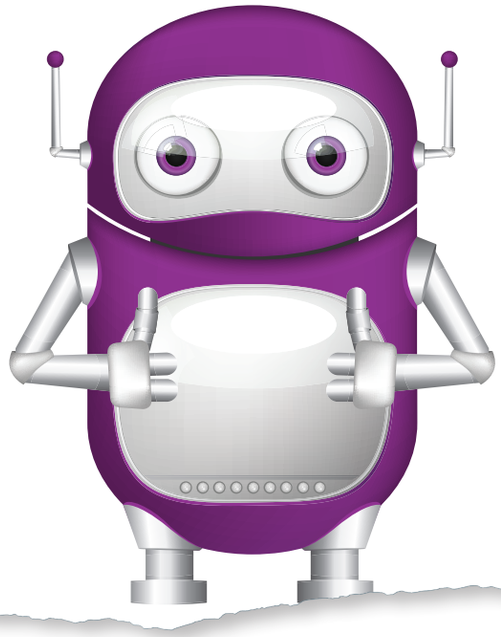
Line graphs 86

Averages 88

Answers **90**

Glossary **94**

Multiplication table **96**



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Multiplication and division facts and skills

Recap

Multiplication squares show us that division is the *inverse* of multiplication.

So, we can say:
8 × 9 = 72
9 × 8 = 72

72 ÷ 9 = 8
72 ÷ 8 = 9

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Revise

You already know some square and cube number facts, and you can calculate others.

Five squared = 5^2 = 5 × 5 = 25

Five cubed = 5^3 = 5 × 5 × 5 = 125

Remember the inverses: 25 ÷ 5 = 5, 125 ÷ 5 = 25

Also, you should now be able to multiply and divide by **powers of 10**.

Operation	Fact	Example
×10	Move one place left	65 × 10 = 650
÷10	Move one place right	65 ÷ 10 = 6.5
×1000	Move three places left	65 × 1000 = 65,000
÷1000	Move three places right	65 ÷ 1000 = 0.065
×1,000,000	Move six places left	65 × 1,000,000 = 65,000,000
÷1,000,000	Move six places right	65 ÷ 1,000,000 = 0.000065

Tips

When multiplying by larger numbers, we can separate the powers of 10, for example:

7 × 12,000 is the same as 7 × 12 × 1000 = 84 × 1000 = 84,000

Or

for 24,000 ÷ 6, just do 24 ÷ 6 = 4, then times by 1000 = 4 × 1000 = 4000

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Talk maths

Try to out-smart an adult. Ask them to solve a calculation mentally, then give them a challenge such as to multiply a square or cube number by a power of 10. For example:

What is seven squared times a thousand?
What is three cubed times one hundred thousand?

If you are feeling brave, work out some answers in advance and then try out-smarting an adult with a mental division, for example:

What is forty-nine thousand divided by seven?
What is two thousand seven hundred divided by three?

DID YOU KNOW?

$10^3 = 1000$
$100^3 = 1{,}000{,}000$

Check

1. Solve these multiplications mentally.

a. 24 × 200 = _____ **b.** 62 × 1000 = _____ **c.** 40 × 40 = _____

d. 25 × 2000 = _____ **e.** 43 × 10,000 = _____ **f.** 100 × 10,000 = _____

2. Now solve these divisions using mental methods.

a. 6000 ÷ 3 = _____ **b.** 125 ÷ 5 = _____ **c.** 125,000 ÷ 5 = _____

d. 360,000 ÷ 4 = _____ **e.** 640,008 ÷ 8 = _____ **f.** 125,000 ÷ 5 = _____

3. Use your knowledge of inverses to solve these.

a. If 27,072 ÷ 576 = 47, what does 576 × 47 = _____

b. If 4320 × 723 = 3,123,360, what does 3,123,360 ÷ 4320 = _____

Problems

Brain-teaser A football stadium holds 8000 people. How much money would be collected for a sell-out match if each ticket was £20?

_____

Brain-buster For a different football match, tickets are sold for £30, but only £90,000 is collected.

How many tickets were sold? _____

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