

Ric Pimentel
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Workbook



HODDER
EDUCATION

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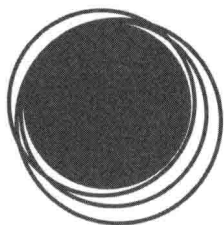
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Contents

	SECTION 1	1
Chapter 1	Place value, ordering and rounding	1
Chapter 2	Expressions	8
Chapter 3	Shapes and geometric reasoning	11
Chapter 4	Length, mass and capacity	19
Chapter 5	Collecting and displaying data	23
Chapter 6	Addition and subtraction	27
	SECTION 2	31
Chapter 8	Integers, powers and roots	31
Chapter 9	Equations and simple functions	38
Chapter 10	Measurement and construction	43
Chapter 11	Time	48
Chapter 12	Averages	52
Chapter 13	Multiplication and division 1	56
	SECTION 3	58
Chapter 15	Fractions, decimals and percentages	58
Chapter 16	Sequences	66
Chapter 17	Angle properties	69
Chapter 18	Area and perimeter of rectangles	77
Chapter 19	Probability	81
Chapter 20	Multiplication and division 2	84
	SECTION 4	87
Chapter 22	Ratio and proportion	87
Chapter 23	Formulae and substitution	92
Chapter 24	Coordinates	95
Chapter 25	Cubes and cuboids	97
Chapter 26	Experimental and theoretical probability	101
Chapter 27	Division and fractions of a quantity	103

SECTION

1

1

Place value, ordering and rounding

Place value

The position of a digit in a number determines its value.

Example: 3491.65 can be placed in a table like this:

Thousands	Hundreds	Tens	Units	Tenths	Hundredths
3	4	9	1	6	5

So the 3 is worth 3000

the 4 is worth 400

the 9 is worth 90

the 1 is worth 1

the 6 is worth 0.6

the 5 is worth 0.05

To multiply by 10, 100 or 1000 move the digits one, two or three places to the left.

To divide by 10, 100 or 1000 move the digits one, two or three places to the right.

Exercise 1.1

1 Write these numbers in the correct columns in the place value table below.

a) 6580.3

b) 483.5

c) 8.93

d) 7602

e) 549.37

f) 6020.04

	Thousands	Hundreds	Tens	Units	Tenths	Hundredths
a)						
b)						
c)						
d)						
e)						
f)						



● CHAPTER 1

2 What is the value of the 6 in the following numbers?

a) 3652 _____

b) 1064 _____

c) 3.265 _____

d) 6273 _____

e) 0.64 _____

f) 6.57 _____

3 Write the following sets of numbers in order, with the smallest first.

a) 4.9, 2.2, 1, 0.9, 4.08, 4.07

b) 0.181, 0.01, 0.1, 0.18, 0.118

c) 4.7, 4.2, 4.17, 4.66, 4.07, 4.34

d) 0.1, 0.12, 0.01, 0.121, 0.22, 0.2

e) 1.11, 1.21, 2.1, 1.2, 1.13, 1.3

4 Multiply the following numbers by 10.

a) 0.21 _____

b) 0.023 _____

c) 2.03 _____

5 Multiply the following numbers by 100.

a) 0.06 _____

b) 0.085 _____

c) 3.012 _____

6 Multiply the following numbers without using a calculator.

a) 5.8×1000 _____

b) 0.014×1000 _____

c) 0.3×1000 _____

7 Divide the following numbers by 10.

a) 1.9 _____

b) 0.53 _____

c) 0.074 _____

8 Divide the following numbers by 100.

a) 3.02 _____

b) 0.1 _____

c) 0.088 _____

9 Find the value of the following.

a) $460 \div 1000$ _____

b) $0.0123 \div 1000$ _____

c) $7 \div 1000$ _____

Rounding

To **round** a number, look at the next digit after the one in question. If that digit is 5 or more, round up. If it is 4 or less, round down.

Example 1: 8.723 to the nearest whole number is 9.

Example 2: 1476 to the nearest ten is 1480.

Exercise 1.2

1 Round the following numbers to the nearest whole number.

a) 8.49 _____

b) 7.33 _____

c) 0.57 _____

d) 0.439 _____

e) 16.42 _____

f) 10.99 _____

2 Round the following numbers (i) to the nearest thousand, (ii) to the nearest hundred and (iii) to the nearest ten.

a) 12 673

(i) _____

(ii) _____

(iii) _____

b) 8973

(i) _____

(ii) _____

(iii) _____

c) 315 776

(i) _____

(ii) _____

(iii) _____

d) 33 437

(i) _____

(ii) _____

(iii) _____

Decimal places

To round to a given number of **decimal places**, look at the next digit after the one in question. If that digit is 5 or more, round up. If it is 4 or less, round down.

Example 1: 7.683 to one decimal place is 7.7.

Example 2: 5.35 to one decimal place is 5.4.

Exercise 1.3

1 Round the following numbers to one decimal place.

a) 4.572 _____

b) 6.358 _____

c) 0.388 _____

d) 11.537 _____

e) 0.059 _____

f) 0.043 _____

2 Round the following numbers to one decimal place.

a) 0.3742 _____

b) 6.5939 _____

c) 1.2345 _____

d) 2.3456 _____

e) 7.6543 _____

f) 5.6789 _____

Estimating answers to calculations

An **estimate** is an approximate answer obtained by rounding.

Example 1: Estimate the answer to 29×61 .

An easy estimate is $30 \times 60 = 1800$.

Example 2: Estimate the answer to $7654 \div 37$.

An easy estimate is $8000 \div 40 = 200$.

Exercise 1.4

1 Estimate the answers to the following calculations.

a) $72 \div 6.9$ _____

b) $3947 \div 43$ _____

c) $859 \div 29$ _____

d) $39.8 \div 4.9$ _____

e) $76982 \div 38.9$ _____

f) $4.3 \div 0.19$ _____



2 Estimate the answers to the following calculations.

a) 6.88×1.95 _____

b) 4.82×3.14 _____

c) 19.3×2.9 _____

d) 11.2×8.7 _____

e) 27.5×32.3 _____

f) 0.8×3.3 _____

3 Estimate the answers to the following calculations.

a) $4.9 \times 8.8 \div 3.9$ _____

b) $9.8 \div 2.1 \times 5.2$ _____

c) $8.9 \times 0.9 \div 4.8$ _____

d) $3.7 \div 1.8 \times 0.9$ _____

e) $12.7 \times 29.3 \div 11.4$ _____

f) $0.8 \times 0.9 \div 1.1$ _____

4 Using estimation, decide which of these calculations are definitely wrong. Mark them with a tick or a cross.

a) $9.4 \times 0.13 = 10$ _____

b) $48.4 \div 6.9 = 7$ _____

c) $8.7 \times 0.23 = 0.5$ _____

d) $48.4 \div 0.69 = 0.7$ _____

e) $48.3 \times 0.09 = 5$ _____

f) $48.4 \div 6.9 = 0.7$ _____

Order of operations

A way of remembering the order of operations is to use the shorthand **BIDMAS**:

Brackets **I**ndices **D**ivision/**M**ultiplication **A**ddition/**S**ubtraction

Example: Calculate $13 + 5 \times 9 - 18$.

$$13 + 5 \times 9 - 18$$

$$= 13 + 45 - 18$$

$$= 40$$

The multiplication is done first.

Exercise 1.5

Work out the following.

1 $4 + 3 \times 6 - 8$ _____

2 $6 \times 7 + 4 \times 7$ _____

3 $3 \times 5 - 10 - 7$ _____

4 $8 + 4 \times 2 - 40$ _____

5 $36 - 2 \times 7 \times 4$ _____

6 $7 \times (8 + 2) - 10$ _____

7 $8 + (22 + 3) \div 5$ _____

8 $80 \div (2 + 6) + 10$ _____

9 $3 + 4 \times 3 - 4$ _____

10 $(24 + 4) \div (8 - 1)$ _____

Teacher comments



Expressions

Expressions

An **expression** represents a value in algebraic form. In the expression $5x + 10$, $5x$ and $+10$ are **terms** in the expression. An **equation** contains an equals sign and shows that the expressions either side of it have the same value.

Order of operations when simplifying expressions

To **simplify** an expression, collect the like terms together. Use **BIDMAS** to remind you of the order of operations:

Brackets **Indices** **Division/Multiplication** **Addition/Subtraction**

Example: Simplify the expression $3a + 5 \times 9a - 8b$.

$$3a + 5 \times 9a - 8b$$

$$= 3a + 45a - 8b$$

$$= 48a - 8b$$

The multiplication is done first.

Exercise 2.1

1 Simplify the following expressions where possible.

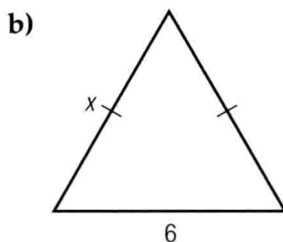
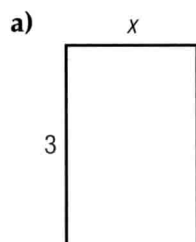
a) $x + y + x =$ _____

b) $p + p + q - p =$ _____

c) $2x + m + m + x - y =$ _____

d) $xy + x + xy + y =$ _____

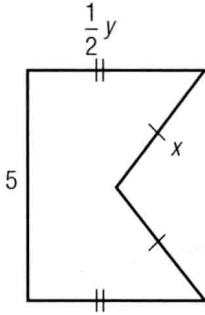
2 Write an expression for the perimeter (the distance around the edge) of each of these shapes.



Perimeter: _____

Perimeter: _____

c)



Perimeter: _____

Expanding two linear expressions

To **expand** brackets, multiply the terms inside the brackets by the term outside.

Example: Expand $6(x + 7)$.

$$6(x + 7) = 6 \times x + 6 \times 7 = 6x + 42$$

Exercise 2.2

1 Expand the following expressions.

a) $2(x + 4) =$ _____

b) $5(x - 1) =$ _____

c) $3(2x + 1) =$ _____

d) $x(x + 4) =$ _____

e) $2x(x - 3) =$ _____

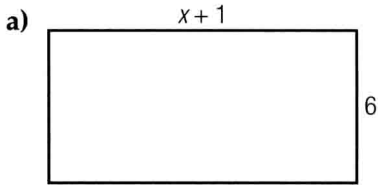
f) $3x(x + y) =$ _____

g) $2x(-x + 6) =$ _____

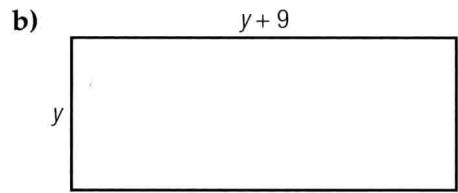
h) $\frac{1}{2}x(-2x + 4) =$ _____



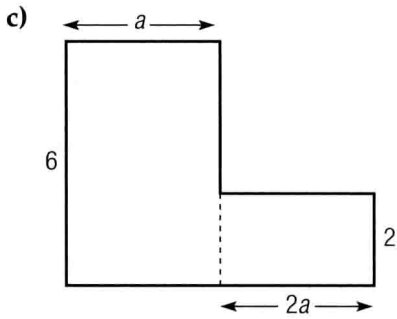
- 2 Write an expression for the area of each of these shapes. Expand the brackets and simplify your answer.



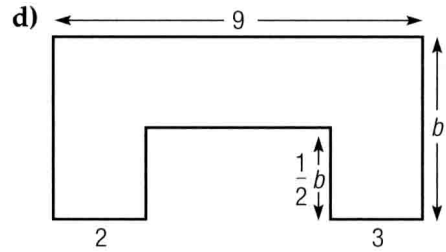
Area: _____



Area: _____



Area: _____



Area: _____

Teacher comments

3

Shapes and geometric reasoning

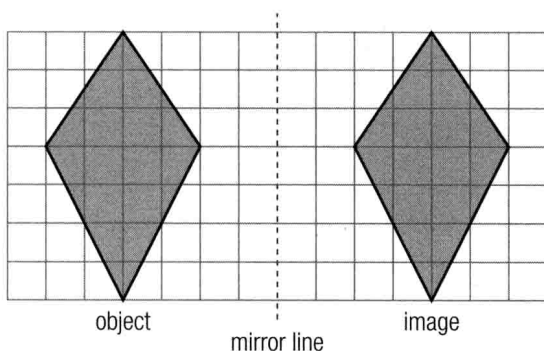
Transformations

If an **object** is **transformed** it can change either its position or its shape. The new shape after the transformation is known as the **image**. With the simplest forms of transformations – **reflections**, **rotations** and **translations** – only the position of the object changes.

Reflection

If an object is **reflected**, it is *flipped* across the **mirror line**, shown on diagrams by a dotted line.

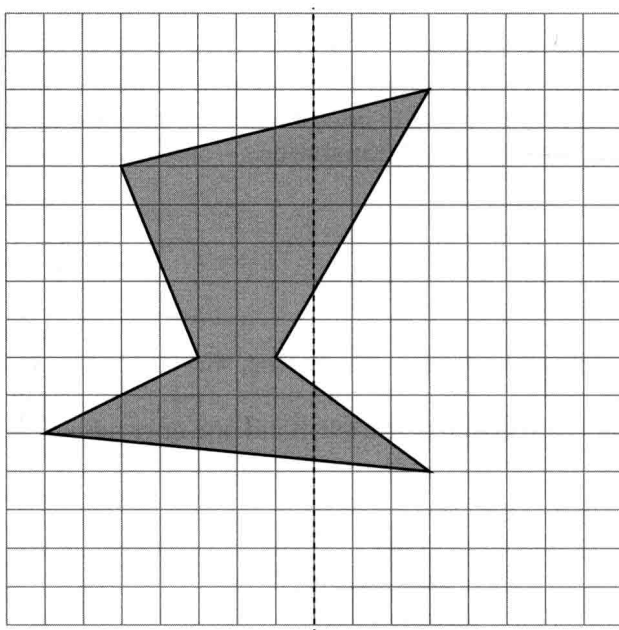
Example: The right-hand kite is the image of the left-hand one after reflection in the mirror line.



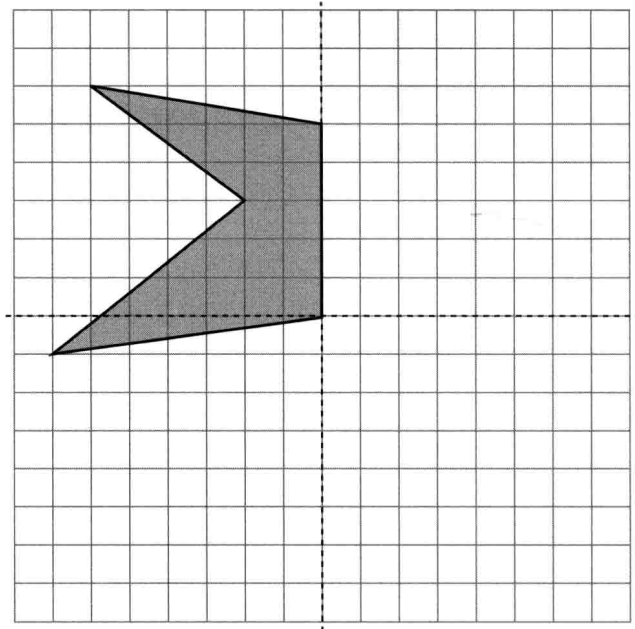
Exercise 3.1

- 1 In this question the object and mirror line(s) are given. Draw in the positions of the image(s).

a)

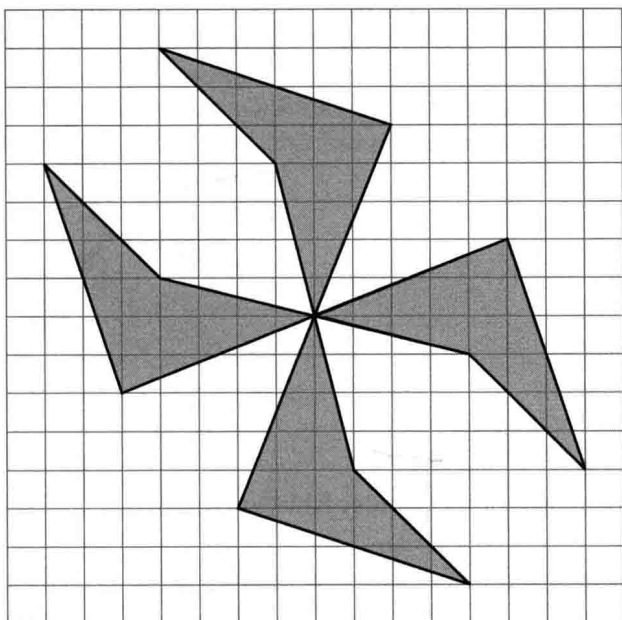


b)



- 2** In this question the objects and images are given. Draw in the position of the mirror line(s).

a)



b)

