

# 1 Basic calculation skills

## Section 1: Basic calculations

### HOMEWORK 1A

Solve these problems using written methods.  
 Set out your solutions clearly to show the methods you chose.

- How many 12-litre containers can be completely filled from a tanker containing 783 litres?
- A train is travelling at a constant 64 mph.
  - How far does it travel in  $1\frac{1}{2}$  hours?
  - How long does it take to travel 336 miles?



Tip

64 mph means the train travels 64 miles each hour.

- A train starts a journey with 576 passengers on board.  
 At the first station 23 passengers get on, 14 get off.  
 At the second station 76 passengers get off and no one gets on.  
 At the third station a further 45 passengers get on.  
 How many passengers are on the train after the third station?
- The table shows the height of the world's four highest mountains.

Mountain	Height in metres
Mount Everest	8848
K2	8611
Kangchenjunga	8586
Lhotse	8516

- How much higher is Mount Everest than Lhotse?
  - What is the smallest difference in height between any two mountains?
  - A climber has climbed to the top of Lhotse. How much higher would she need to climb if she was climbing K2?
- What is the product of 19 and 21?

- Which of the following pairs of numbers has a difference of 37 and a product of 2310?
  - 23 and 60
  - 77 and 30
  - 66 and 35
  - 33 and 70



Tip

Use trial, error and improvement.

### HOMEWORK 1B

- The temperature one day in Aberdeen is  $3^{\circ}\text{C}$ . Overnight the temperature drops by  $11^{\circ}\text{C}$ . What is the temperature overnight?
- Calculate.
  - $13 - 4 + 8$
  - $-4 - 3 - 7$
  - $-5 + 9 - 6$
  - $-8 - (-5) + 3$
  - $-27 + (-12) - 18$
- Simplify.
  - $-2 \times -5 \times -3$
  - $-3 \times 8 \times -2$
  - $8 \times -4 \times 7$
  - $-8 \times -6 \times -4 \times 3$
  - $-48 \div 12$
  - $-144 \div -8$
  - $424 \div -8$
  - $-225 \div -15$



Tip

Make sure you know the rules about multiplying and dividing by negative numbers.

- Simplify.
  - $\frac{40}{8}$
  - $\frac{63}{-9}$
  - $\frac{-81}{-9}$
  - $\frac{-200}{-8}$
  - $\frac{-360}{-9}$
- Start with the number  $-5$  and complete the table. Use your previous answer each time.

Start	-5
$\times 6$	=
$+ (-3)$	=
$\div (-11)$	=
$-8$	=
$\times -2$	=
$- (-7)$	=
$\times 3$	=

## GCSE Mathematics for OCR (Foundation)

- 6 Hilary's small business account has £489 in the bank on a Sunday night.  
 Calculate the missing amounts:

Day	Spends	Deposits	Balance
Monday	£456	£745	
Tuesday		£398	-£100
Wednesday	£1109		£33

- 7 The Marianas Trench is the deepest part of the ocean, being 10911 metres deep.
- What is the difference in height from the top of Mount Everest (see Q4 in section 1) to the bottom of the Marianas Trench?
  - If a mountain the height of Mount Everest was formed at the bottom of the trench, how far below sea level would the summit of the mountain be?
- 8 Here is a set of integers:  $\{-7, -5, -1, 2, 7, 11\}$ .
- Find two numbers with a difference of 7.
  - Find two numbers with a product of  $-7$ .
  - Find three numbers with a sum of 4.

## Section 2: Order of operations

### HOMEWORK 1C

- 1 Simplify.
- $6 \times 11 + 4$
  - $6 \times (11 - 2)$
  - $5 + 11 \times 2$
  - $(3 + 12) \times 4$
  - $25 + 6 \times 3$
  - $8 \times 3 \div (4 + 2)$
  - $(14 + 7) \div 3$
  - $43 + 2 \times 8 + 6$
  - $24 \div 4 \times (8 - 5)$
  - $16 - \frac{8}{2} + 5$
- 2 Use the numbers listed to make each number sentence true.
- $\square - \square \div \square = \square$       1, 18, 6, 4
  - $\square - \square \div \square = \square$       8, 7, 3, 2
  - $\square \div (\square - \square) - \square = \square$       2, 3, 4, 7, 15



Tip

Learn the rules about order of operations.

## Section 3: Inverse operations

### HOMEWORK 1D

- 1 Find the additive inverse of each of these numbers.  
 a 7    b 6    c 200    d  $-7$     e  $-21$     f  $-36$
- 2 By what number would you multiply each of these to get an answer of 1?  
 a 4    b 12    c  $-5$     d  $\frac{1}{2}$     e 7    f  $\frac{1}{8}$
- 3 Use inverse operations to check the results of each calculation.  
 Correct those that are wrong.  
 a  $6247 - 1907 = 4340$     b  $2487 - 1581 = 816$   
 c  $7845 - 2458 = 547$     d  $4588 + 2549 = 7137$
- 4 Use inverse operations to find the missing values in each of these calculations.  
 a  $\square + 564 = 729$     b  $\square + 389 = 786$   
 c  $\square - 293 = 146$     d  $132 \times \square = -3564$   
 e  $-8 \times \square = 392$     f  $\square \div 30 = 4800$

## Chapter 1 review

- 1 Bonita and Kim travel for  $3\frac{1}{2}$  hours at 48 km per hour.  
 They then travel a further 53 km.  
 What is the total distance they have travelled?
- 2 On a page of a newspaper there are 8 columns of text.  
 Each row contains a maximum of 38 characters.  
 Each column has a total of 168 rows.
- What is the maximum number of characters that can appear on a page?
  - The average word length is six characters, and each word needs a space after it.  
 Estimate the number of words that can fit on a page.
- 3 A theatre has seats for 2925 people. How many rows of 75 is this?
- 4 Two numbers have a sum of  $-12$  and a product of  $-28$ . What are the numbers?
- 5 Jadheja's bank account was overdrawn. She deposited £750 and this brought her balance to £486.  
 By how much was her account overdrawn to start with?