

# 1 Working with integers

## 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 speed of 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 people on board. At the first station 23 people get on, 14 get off. At the second station 76 people get off and no one gets on. At the third station a further 45 people get on. How many people are on the train after the third station?
- 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 the next morning?

- 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:
  - $\frac{40}{8}$
  - $\frac{63}{-9}$
  - $\frac{-81}{-9}$
  - $\frac{-200}{8}$
  - $\frac{-360}{-9}$

- Hilary's business account has £489 in the bank on a Sunday night. Calculate the missing figures to complete the table below.

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

- 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

- Calculate the following.
  - $6 \times 11 + 4$
  - $6 \times (11 - 2)$
  - $5 + 11 \times 2$
  - $(3 + 12) \times 4$
  - $25 + 6 \times 3$
  - $8 \times 3 \div (4 + 2)$
  - $(14 + 7) \div 3$
  - $43 + 2 \times 8 + 6$
  - $24 \div 4 \times (8 - 5)$
  - $16 - \frac{8}{2} + 5$

## GCSE Mathematics for AQA (Foundation)

- 2 Use the numbers listed (in bold) to make each number sentence true.
- a  $\square - \square \div \square = \square$       1, 18, 6, 4
- b  $\square - \square \div \square = \square$       8, 7, 3, 2
- c  $\square \div (\square - \square) - \square = \square$       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 incorrect.  
 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 three and a half hours at 48 kilometres 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 eight columns of text. Each row contains a maximum of 38 characters (spaces between words count as characters). Each column has a total of 168 rows.
- a What is the maximum number of characters that can appear on a page?  
 b 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?

## 2 Collecting, interpreting and representing data

## Section 1: Populations and samples

## HOMEWORK 2A

- 1 A local shop owner wants to find out how many boxes of a new crisp flavour she should order.

She asks the first ten customers who come into the shop whether they would buy the new flavour if she started selling them.

- a What is the population in this survey?  
 b What is the sample involved in the survey?  
 c Is this a representative sample or not? Give a reason for your answer.