

1 Integers

## > 1.3 Lowest common multiples

### Worked example 1.3

Find the **lowest common multiple** (LCM) of 6 and 9.

#### Answer

The **multiples** of 6 are 6, 12, 18, 24, 30, 36, 42, 48, 54, ...

The multiples of 9 are 9, 18, 27, 36, 45, 54, ...

The **common multiples** are 18, 36, 54, ...

The lowest common multiple is 18.

#### Key words

common multiple  
lowest common multiple (LCM)  
multiple

You may not need to list so many multiples each time.

## Exercise 1.3

### Focus

- 1 Write down the first four multiples of:  
 a 4                      b 7                      c 12                      d 30
- 2 How many multiples of 10 are less than 100?
- 3 a Work out the multiples of 8 that are less than 50.  
 b Work out the multiples of 5 that are less than 50.  
 c Write down the lowest common multiple of 8 and 5.
- 4 a Find the first five common multiples of 2 and 3.  
 b Copy and complete this sentence:  
 The common multiples of 2 and 3 are multiples of   
 c Find the lowest common multiple of 2 and 3.
- 5 a Write down the first three common multiples of 6 and 4.  
 b Copy and complete this sentence:  
 The common multiples of 6 and 4 are multiples of   
 c Write down the lowest common multiple of 6 and 4.
- 6 Find the lowest common multiple of:  
 a 3 and 10                      b 4 and 10                      c 5 and 10

## Practice

- 7 Show that the multiples of 3 and 5 are multiples of 15.
- 8 Find the lowest common multiple of 6 and 14.
- 9 a Find the lowest common multiple of:  
i 7 and 2                      ii 7 and 4                      iii 7 and 6  
b Is there an easy method to find the lowest common multiple of 7 and a number less than 7?  
c Does the method in part b work for 7 and a number more than 7?
- 10 Look at these numbers: 90 92 94 96 98 100  
a i Which number is a multiple of 9 and 10?  
ii Is this number the lowest common multiple?  
b i Which number is a multiple of 2 and 7?  
ii Is this number the lowest common multiple?  
c i Which number is a multiple of 12 and 8?  
ii Is this number the lowest common multiple?
- 11 Work out the lowest common multiple (LCM) of 2, 5 and 6.

## Challenge

- 12 Find the LCM of 3, 8 and 9.
- 13  $24 \times 4 = 96$   
a Explain why 96 is a common multiple of 4 and 24.  
b Is 96 the lowest common multiple of 4 and 24? Give evidence to justify your answer.
- 14 Two numbers have a LCM of 45. The two numbers add up to 14. Find the two numbers.
- 15 The LCM of two numbers is 63. Work out the two numbers.