GCSE Diagnostic Assessment - Mathematics

Diagnostic Overview

General guidance

Welcome to your diagnostic assessment. This test is designed to help you decide if you are at or near to the current GCSE Maths pass level (Grade 4 or 5).

This assessment is worth 60 marks, and should take between 1 and 2 hours to complete.

Some questions require the use of a calculator. These are marked with a calculator symbol.

Deciding on the right path towards a Mathematics qualification

The purpose of this diagnostic assessment is to help you work out what the most suitable path for you is. There are two pathways:
- The 14 week (70 hour) _GCSE Mathematics Online Study Course_ helps to prepare you to sit the GCSE Maths exam.
- The 8 week (16 hour) _Raising Skills: Maths_ self-study programme helps develop your maths skills for progression onto a GCSE or vocational course.

Completing the diagnostic test

You can choose to print out the question paper or work from it on screen, writing your answers on paper. The number of marks for each question is shown in brackets. Questions with more than one mark will generally require more than one step or answer.

Once you have completed the exam paper, use the mark scheme to mark your own work and calculate the total. Please keep hold of your answer sheet (or a scan or photo of it) after taking the assessment, and email it to Onlinestudycourse@pearson.com. This will help your tutor to support you.

Diagnostic Assessment

1   **a**   Write down the value of the digit 7 in the number 2076.

....
(1 mark)

    b   Write the number 2076 to the nearest hundred.

....
(1 mark)

    c   Find one third of 2076.

....
(2 marks)

2   **a**   Add £1.60 and £2.55

£.......................................
(1 mark)

    b   An item costs £3.35.
        How much change would you get from a £10 note?

£.......................................
(1 mark)

    c   An item costs £1.25
        How much do five items cost?

....
(1 mark)

    d   Beth buys three identical items.
        She pays £4.20 altogether.
        How much does one item cost?

....
(1 mark)

3 In a survey, some people were asked, 'How many pets do you have?'
The table shows the results of the survey.

Number of pets	Number of people
0	7
1	13
2	22
3	2
More than 3	1

a How many people have 1 pet?

....
(1 mark)

b How many **more** people have 2 pets than have no pets?

....
(1 mark)

c How many people answered the survey?

....
(1 mark)

4 Here is a cube.
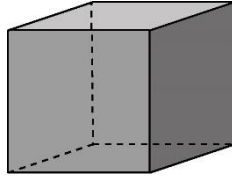
    a How many faces does the cube have?

....
(1 mark)

    b How many edges does the cube have?

....
(1 mark)

    c How many vertices does the cube have?

....
(1 mark)

5 The bar chart shows average rainfall in Paris for the six-month period from April until September.
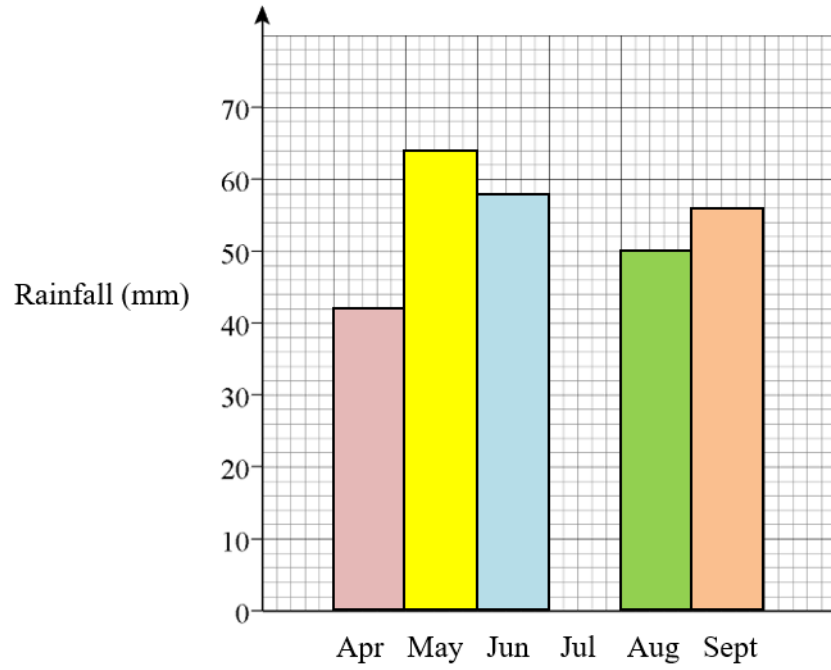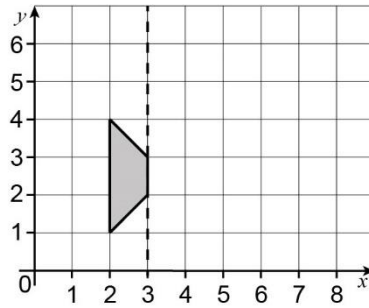

a What is the average rainfall for June?

.... mm

(1 mark)

b In July the average rainfall is 54 mm.
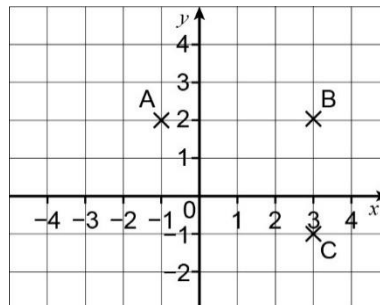   Draw the bar for July on the bar chart.

(1 mark)

6 Reflect the shape in the mirror line.

(2 marks)

7 Points A, B and C are marked on this coordinate grid with a cross.

   a Write down the coordinates of B.

....
(1 mark)

   b Write down the coordinates of A.

....
(1 mark)

   c D is the point with coordinates $(-1, -1)$.
     Plot the point D on the grid.

(1 mark)

8 Write these decimals in order, starting with the smallest.

0.613   0.08   0.4   0.361   0.27

....
(2 marks)

9 Here is a list of numbers.

8   15   26   29   36   39   42   45

a Which number is a square number?

....
(1 mark)

b Which number is a multiple of 7?

....
(1 mark)

c Which number is a factor of 60?

....
(1 mark)

d Which number is a prime number?

....
(1 mark)

10 Here is a conversion graph.
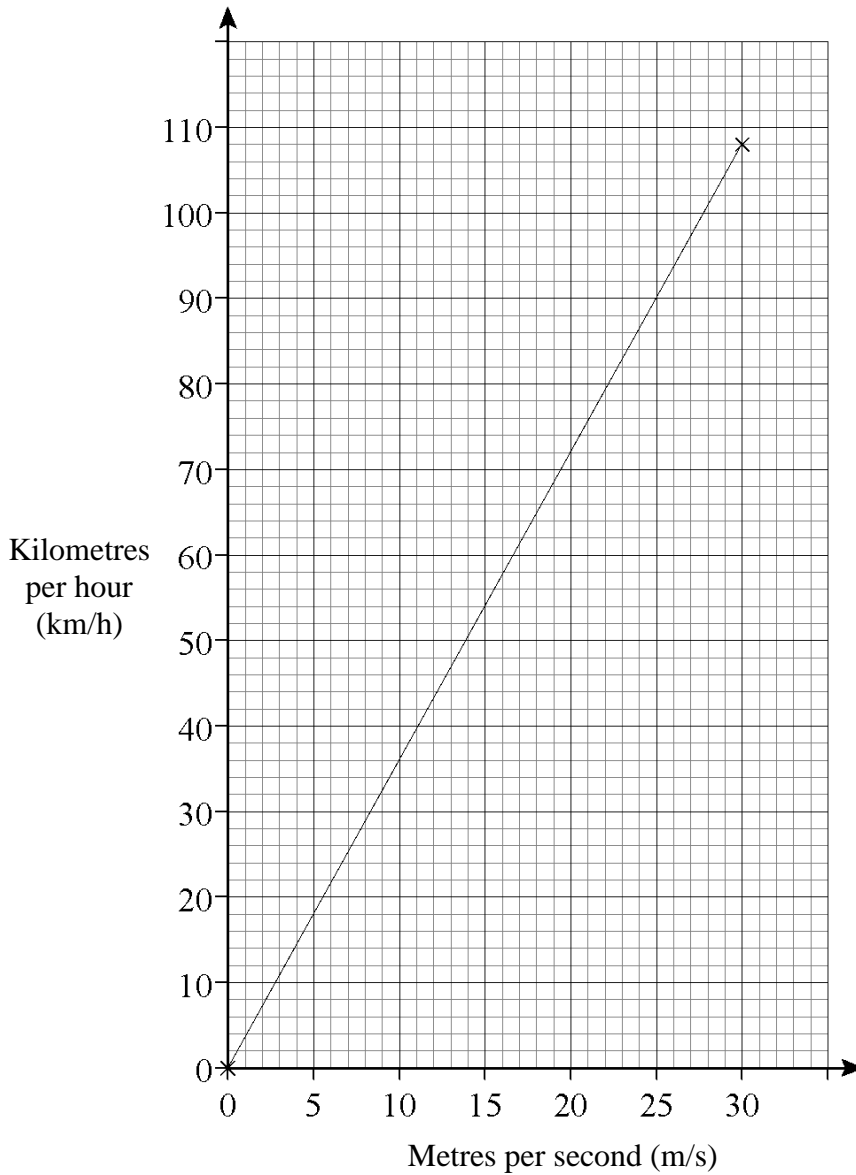
a Use the graph to convert 90 km/h to m/s.

.... m/s

(1 mark)

b Use the graph to convert 10 m/s to km/h.

....km/h

(1 mark)

c A swift can fly at 160 km/h.
What is this speed in m/s?
Show your working clearly.

....m/s

(2 marks)

11 Dave has 85p.
Ellie has £1.43
How much should Ellie give to Dave so that they both have the same amount of money?

....
(2 marks)

12 These patterns are made from squares.

Pattern 1   Pattern 2   Pattern 3
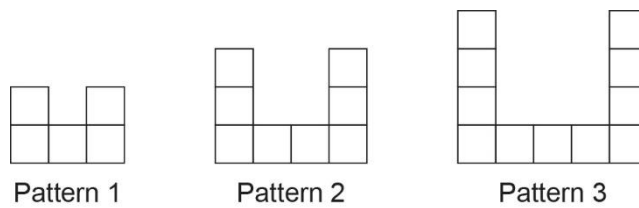
a Draw Pattern 4.

(1 mark)

b Complete the table.

Pattern number	1	2	3	4	5
Number of squares	5	8	11		

(2 marks)

c Write down a rule for continuing the number of squares in a pattern.

....
(1 mark)

d Which pattern will have 32 squares?

....
(1 mark)

13 Online admission prices for a theme park are:

Adult	£19.50
Children	£12.50

Two adults made a booking for themselves and a group of children.
The total bill was £201.50

How many children were in the group?
Show working to justify your answer.

....

(4 marks)

14   Share £200 in the ratio 3 : 2

£...................and £.......................

(3 marks)

15 Here are two ways of paying for delivery from an online supermarket.

Option A
£1.99 for each
delivery

Option B
£5.99 per month
All deliveries are free
Minimum contract two years

Rachel estimates that she will need 80 deliveries over the next two years.

Which is the cheaper option for Rachel?
Show working to justify your answer.

Option...........................

(4 marks)

16 a Which two of these fractions are equivalent to $\frac{3}{4}$?

$$\frac{5}{6} \qquad \frac{8}{12} \qquad \frac{12}{16} \qquad \frac{16}{20} \qquad \frac{18}{24}$$

..................and.....................

(2 marks)

b Work out $\frac{2}{5}$ of £65

....

(2 marks)

17 Here is some information about 50 people who took the driving test:

18 of the 50 people are teenagers.
One quarter of the adults failed the driving test.
The number of adults who passed the driving test was 8 more
than the number of teenagers who passed the test.

a Use this information to complete this two-way table.

	Pass	**Fail**	**Total**
Adults			
Teenagers			18
Total			50

(4 marks)

b A person is chosen at random.
What is the probability that they passed the driving test?

....

(1 mark)

18 A jacket costs £44 in the England.
The same jacket costs 45 euros in France.

In which country is the jacket better value for money?
You may use the fact that £1 = 1.13 euros

Show working to justify your answer.

....
(2 marks)

Overall mark	/60

This is the end of the diagnostic assessment.
Use the mark scheme to mark your work. There is information in the mark scheme to help you decide which path to follow next.