Paper Reference(s)

**5521/02**

# Edexcel GCSE

## Mathematics A – 1387

Paper 2 (Calculator)

# Foundation Tier

Wednesday 15 June 2005 – Morning

Time: 1 hour 30 minutes

| **Materials required for examination** | **Items included with question papers** |
|---|---|
| Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used. | Nil |

## Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer **ALL** the questions in the spaces provided in this question paper.
**You must NOT write on the formulae page. Anything you write on the formulae page will gain NO credit.**
If you need more space to complete your answer to any question, use additional answer sheets.

## Information for Candidates

There are 26 questions in this paper. The total mark for this paper is 100.
The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
Calculators may be used.
If your calculator does not have a $\pi$ button, take the value to be 3.142 unless the question instructs otherwise.

## Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

*Turn over*

edexcel

**Area of trapezium** $= \frac{1}{2}(a+b)h$

M 2 0 8 3 2 A 0 2 2 4

**Answer ALL TWENTY SIX questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

1. Daniel carried out a survey of his friends' favourite flavour of crisps.

   Here are his results.

   | | | | | |
   |---|---|---|---|---|
   | Plain | Chicken | Bovril | Salt & Vinegar | Plain |
   | Salt & Vinegar | Plain | Chicken | Plain | Bovril |
   | Plain | Chicken | Bovril | Salt & Vinegar | Bovril |
   | Bovril | Plain | Plain | Salt & Vinegar | Plain |

   (a) Complete the table to show Daniel's results.

   | Flavour of crisps | Tally | Frequency |
   |---|---|---|
   | Plain | | |
   | Chicken | | |
   | Bovril | | |
   | Salt & Vinegar | | |

   **(3)**

   (b) Write down the number of Daniel's friends whose favourite flavour was Salt & Vinegar.

   .............................................
   **(1)**

   (c) Which was the favourite flavour of most of Daniel's friends?

   .............................................
   **(1)**

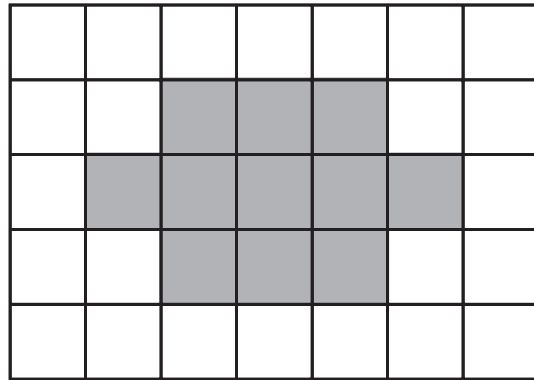   **(Total 5 marks)**

**2.** A shaded shape has been drawn on the centimetre grid.

(a) (i) Find the area of the shaded shape.

....................cm$^2$

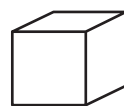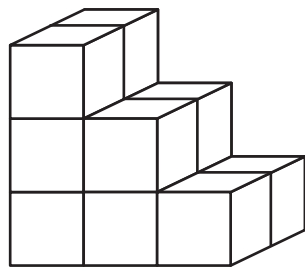(ii) Find the perimeter of the shaded shape.

....................cm

**(2)**

The shaded shape has **two** lines of symmetry.

(b) Draw the **two** lines of symmetry on the shaded shape.

**(2)**

(c) Find the volume of this prism.

Diagram **NOT**
accurately drawn

represents 1 cm$^3$

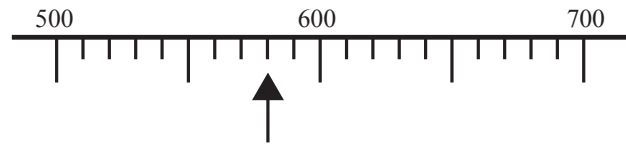....................cm$^3$

**(2)**

Q2

**(Total 6 marks)**

**3.**

500        600        700

(a) Write down the number marked with an arrow.

............................
**(1)**

6        7        8

(b) Write down the number marked with an arrow.

............................
**(1)**

30        40        50
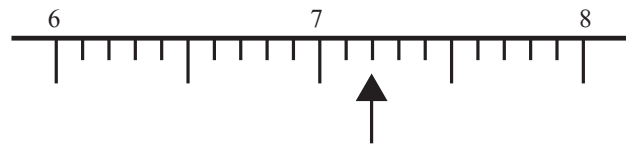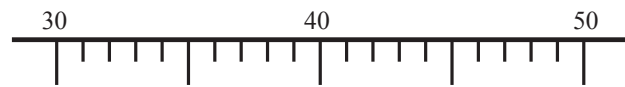
(c) Find the number 48 on the number line.
    Mark it with an arrow (↑).

**(1)**

6        7        8
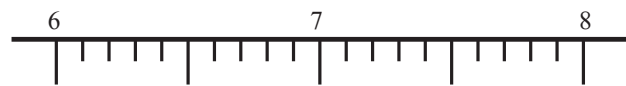
(d) Find the number 6.7 on the number line.
    Mark it with an arrow (↑).

**(1)**

**(Total 4 marks)**

Q3

M20832A0524

**4.** Write down the mathematical name of each of these two 3-D shapes.

(i)

(ii)

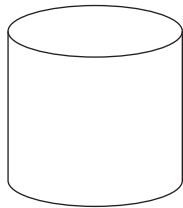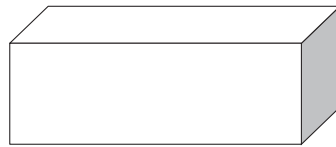(i)........................................    (ii)........................................

**(Total 2 marks)**

**5.** The table below shows the cost of each of three calculators.

| Compact | £2.30 |
|---------|-------|
| Studio | £2.15 |
| Basic | £2.80 |

Barbara buys one Studio calculator and one Compact calculator.
She pays with a £10 note.

(a)  How much change should she get?

£........................
**(4)**

Mrs Brown wants to buy some Basic calculators.
She has £60 to spend.

(b)  Work out the greatest number of Basic calculators she can buy.

...........................
**(2)**

Mrs Brown gets a 25% reduction if she spends £120 or more.

(c)  Work out 25% of £120

£........................
**(2)**

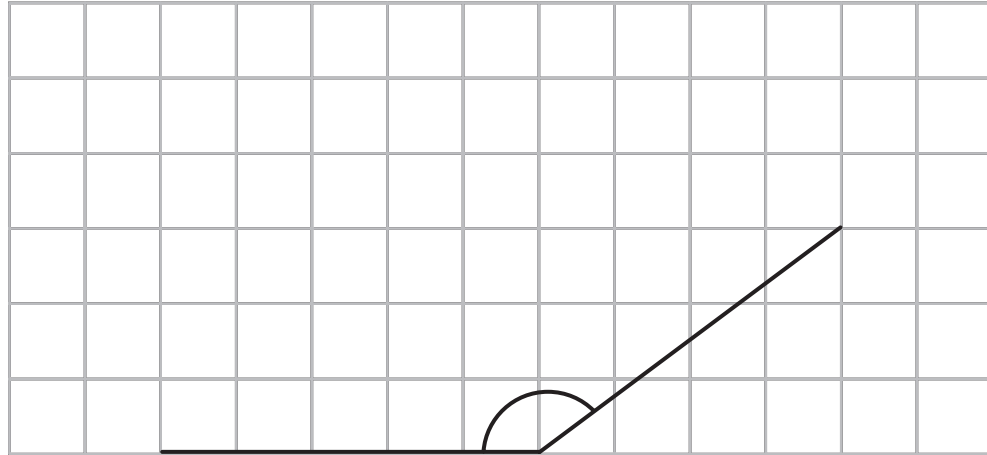**(Total 8 marks)**

**6.** The diagram shows two sides of a rhombus drawn on a grid of centimetre squares.

(a) (i) Measure the size of the angle between these two sides.

..........................°

(ii) What type of angle have you measured?

...........................

**(2)**

(b) Complete accurately the drawing of the rhombus.

**(1)**

**(Total 3 marks)**

Q6

**7.** (a) The first odd number is 1.

    (i) Find the 3rd odd number.

    ..........................

    (ii) Find the 12th odd number.

    ..........................
    **(2)**

(b) Write down a method you could use to find the 100th odd number.

.................................................................................................................................

.................................................................................................................................
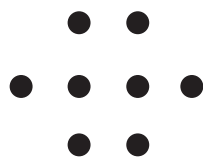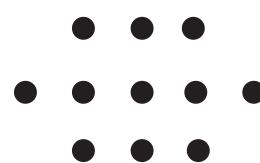**(1)**

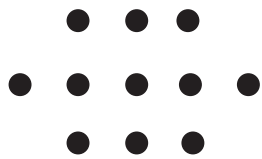Here are some patterns made with dots.
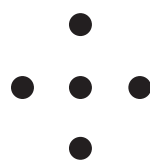
Pattern Number 1    Pattern Number 2    Pattern Number 3

(c) In the space below, complete Pattern Number 4.

**(1)**

The table shows the number of dots used to make each pattern.

(d) Complete the table.

| Pattern Number | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Number of dots | 5 | 8 | 11 | | |

**(2)** Q7

**(Total 6 marks)**

**8.** The table shows the temperature on the surface of each of five planets.

| Planet | Temperature |
|---|---|
| Venus | 480 °C |
| Mars | − 60 °C |
| Jupiter | − 150 °C |
| Saturn | − 180 °C |
| Uranus | − 210 °C |

(a) Work out the difference in temperature between Mars and Jupiter.

...................°C

**(1)**

(b) Work out the difference in temperature between Venus and Mars.

...................°C

**(1)**

(c) Which planet has a temperature 30 °C higher than the temperature on Saturn?

...........................

**(1)**

The temperature on Pluto is 20 °C lower than the temperature on Uranus.

(d) Work out the temperature on Pluto.

...................°C

**(1)**

**(Total 4 marks)**

Q8

**9.** Alison travels by car to her meetings.
Alison's company pays her 32p for each mile she travels.

One day Alison writes down the distance readings from her car.

Start of the day:    2430 miles
End of the day:     2658 miles

(a) Work out how much the company pays Alison for her day's travel.

£........................

**(4)**

The next day Alison travelled a total of 145 miles.

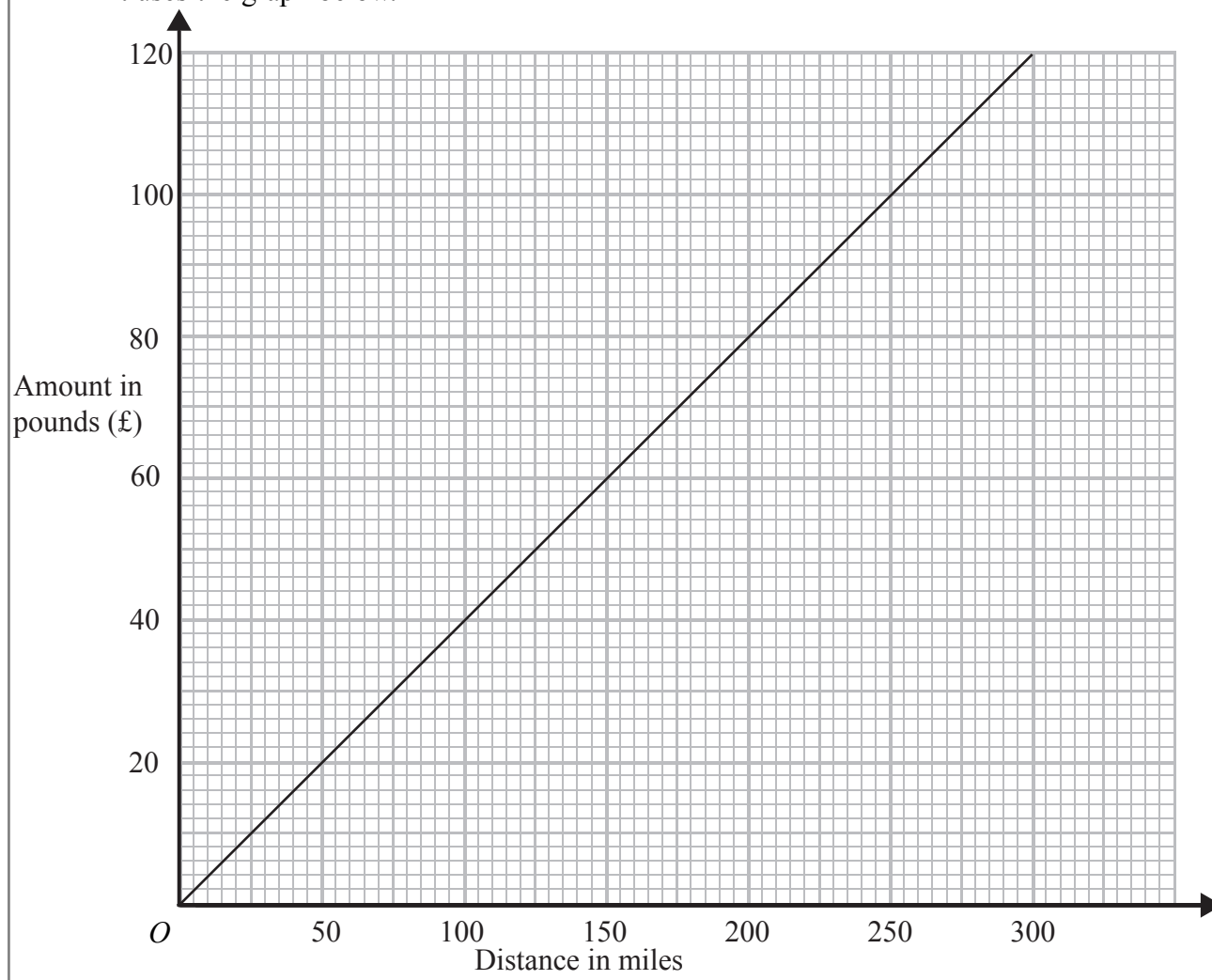She travelled $\frac{2}{5}$ of this distance in the morning.

(b) How many miles did she travel during the rest of the day?

.................miles

**(3)**

Tom also travels by car to his meetings.
Tom's company works out the amount it will pay him for the distance he travels.
It uses the graph below.



(c)  Use the graph to write down

    (i)   the amount Tom's company pays him when he travels 200 miles,

                                                    £........................

    (ii)  the distance Tom travels when his company pays him £50.

                                                    ................. miles
                                                         **(2)**  Q9

                                        **(Total 9 marks)**

**10.**



The picture shows a man standing next to a giraffe.
The man and the giraffe are drawn to the same scale.

(a) Write down an estimate for the height, in metres, of the man.

.......................m
**(1)**

(b) Estimate the height, in metres, of this giraffe.

.......................m
**(3)**

**(Total 4 marks)**

Q10

**11.** Imran thinks of a number.

He multiplies the number by 3.
He then adds 19.

His answer is 61.

What number did Imran first think of?

...........................
**(Total 2 marks)**

Q11

**12.** Chloe made a list of her homework marks.

$$4 \quad 5 \quad 5 \quad 5 \quad 4 \quad 3 \quad 2 \quad 1 \quad 4 \quad 5$$

(a) Write down the mode of her homework marks.

..........................
**(1)**

(b) Work out her mean homework mark.

..........................
**(2)**

**(Total 3 marks)**

**Q12**

**13.** Andrew, Brenda and Callum each collect football stickers.

Andrew has $x$ stickers.
Brenda has three times as many stickers as Andrew.

(a) Write down an expression for the number of stickers that Brenda has.

..........................
**(1)**

Callum has 9 stickers less than Andrew.

(b) Write down an expression for the number of stickers that Callum has.

..........................
**(1)**

**(Total 2 marks)**

**Q13**

**14.** (a) Work out the value of $\quad 3.8^2 - \sqrt{75}$
Write down all the figures on your calculator display.

.................................................
**(2)**

(b) Write your answer to part (a) correct to 1 significant figure.

.................................................
**(1)**

**(Total 3 marks)**

**Q14**

M 2 0 8 3 2 A 0 1 3 2 4

**15.** The length of a coach is 15 metres.

Jonathan makes a model of the coach.
He uses a scale of 1:24

Work out the length, in centimetres, of the model coach.

.....................cm **Q15**

**(Total 2 marks)**

**16.** Margaret goes on holiday to Switzerland.
The exchange rate is £1 = 2.10 francs.

She changes £450 into francs.

How many francs should she get?

................francs **Q16**

**(Total 2 marks)**

**17.** The table shows some expressions.

| $2(y + y)$ | $2y + y$ | $2y \times 2y$ | $2y + 2y$ | $2 + 2y$ |
|---|---|---|---|---|
|  |  |  |  |  |

**Two** of the expressions **always** have the same value as $4y$.
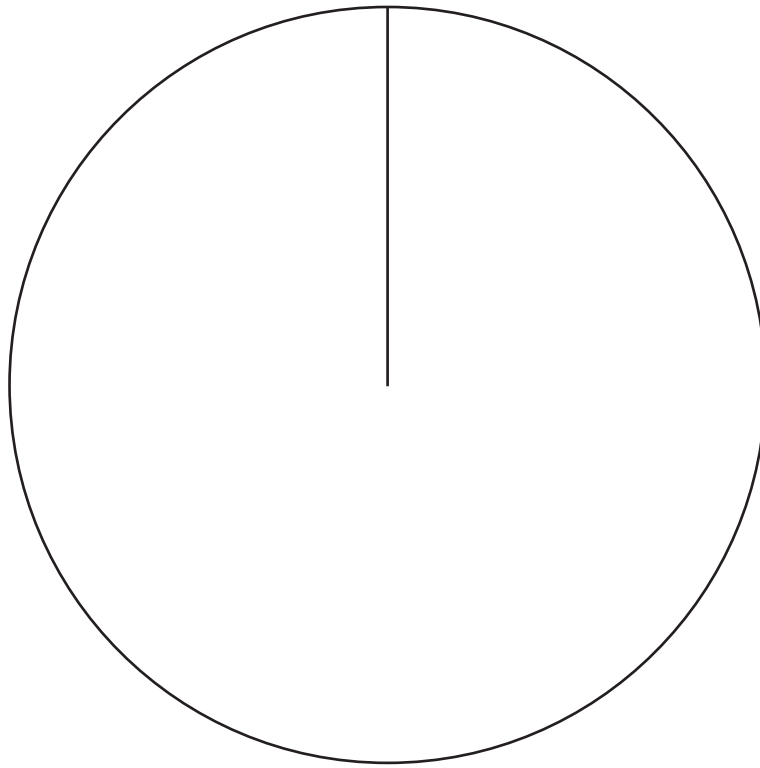Tick (✔) the boxes underneath the **two** expressions.

**Q17**

**(Total 2 marks)**

**18.** The table gives information about the medals won by Austria in the 2002 Winter Olympic Games.

| Medal | Frequency | |
|--------|-----------|---|
| Gold | 3 | |
| Silver | 4 | |
| Bronze | 11 | |

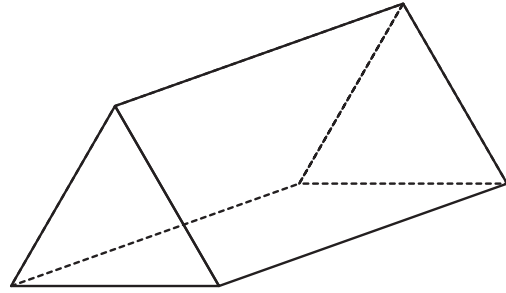Draw an accurate pie chart to show this information.

**(Total 4 marks)**

Q18

**19.**

The diagram shows a triangular prism.
The cross-section of the prism is an equilateral triangle.

(a) On the diagram, draw in **one** plane of symmetry for the triangular prism.

**(2)**

(b) In the space below, draw a sketch of a net for the triangular prism.

**(2)**

(c) In the space below, use ruler and compasses to **construct** an equilateral triangle with sides of length 6 centimetres.
You must show all construction lines.
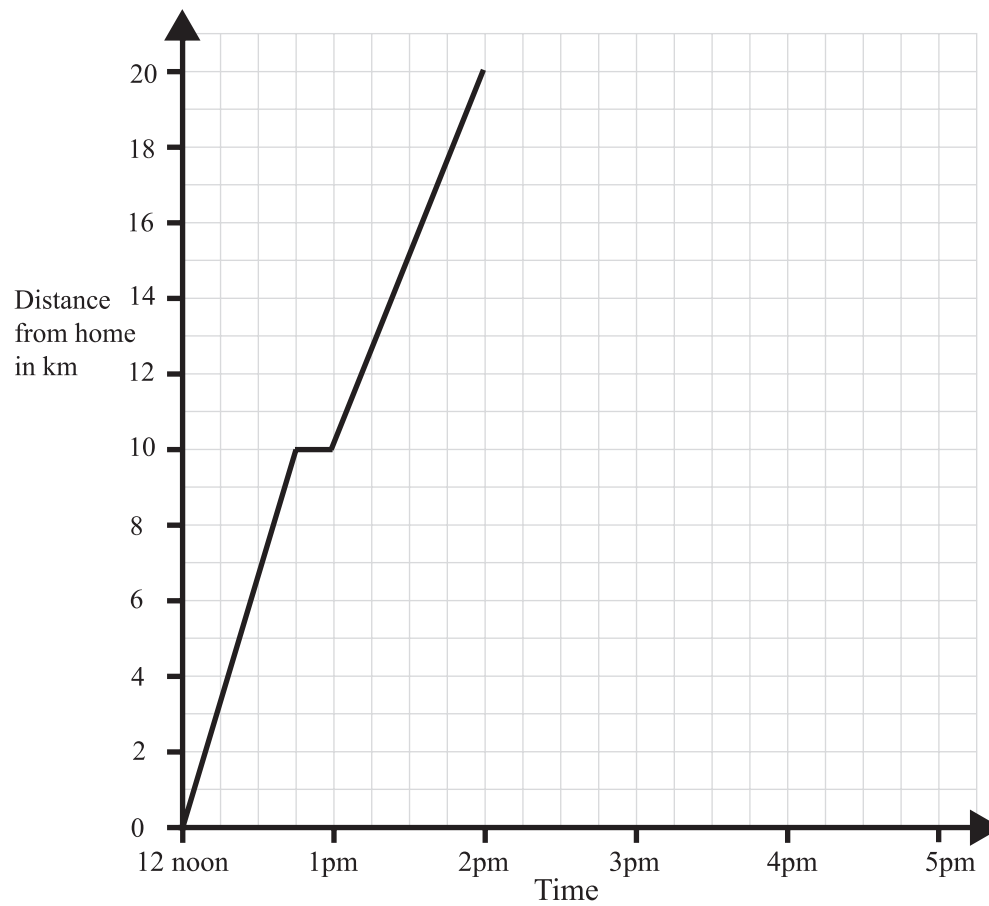One side of the triangle has already been drawn for you.

(2)

**(Total 6 marks)**

**20.** A man left home at 12 noon to go for a cycle ride.
The travel graph represents part of the man's journey.



At 12.45pm the man stopped for a rest.

(a) For how many minutes did he rest?

............. minutes

**(1)**

(b) Find his distance from home at 1.30pm.

.................... km

**(1)**

The man stopped for another rest at 2pm.
He rested for one hour.
Then he cycled home at a steady speed. It took him 2 hours.

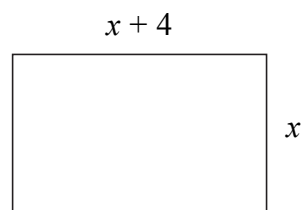(c) Complete the travel graph.

**(2)**     **Q20**

**(Total 4 marks)**

**21.** The width of a rectangle is $x$ centimetres.
The length of the rectangle is $(x + 4)$ centimetres.

$x + 4$

$x$

(a) Find an expression, in terms of $x$, for the perimeter of the rectangle.
Give your expression in its simplest form.

..........................

**(2)**

The perimeter of the rectangle is 54 centimetres.

(b) Work out the length of the rectangle.

....................cm

**(3)**

**(Total 5 marks)**

Q21

**22.** Mr Brown chooses one book from the library each week.
He chooses a crime novel or a horror story or a non-fiction book.

The probability that he chooses a horror story is 0.4
The probability that he chooses a non-fiction book is 0.15

Work out the probability that Mr Brown chooses a crime novel.
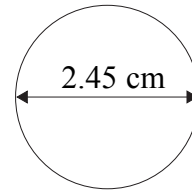
..........................

**(Total 2 marks)**

Q22

**23.** A 10 pence coin is made from copper and nickel.
The ratio of the weight of copper to the weight of nickel is 18:6

(a) Write the ratio 18:6 in its simplest form.

.........................

**(1)**

The diameter of the 10 pence coin is 2.45 cm.

(b) Work out the circumference of the coin.
Give your answer correct to 1 decimal place.

2.45 cm

.........................................cm

**(2)**

**(Total 3 marks)**

**24.** Change 7 m² to cm².

.....................cm²

**(Total 2 marks)**

**25.** Michael buys 3 files.

The total cost of these 3 files is £5.40

Work out the total cost of 7 of these files.

£........................

**(Total 3 marks)**

**26.** Alistair sells books.
He sells each book for £7.60 plus VAT at $17\frac{1}{2}$ %.

He sells 1650 books.

Work out how much money Alistair receives.

£.........................

**(Total 4 marks)**

**TOTAL FOR PAPER: 100 MARKS**

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