

Write your name here:

Surname:	Other Names:
----------	--------------

# Mathematics

## May/June 2017

### Paper 3 (Calculator)

#### Foundation Tier

#### Time: 1 hour 30 minutes

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser

#### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– there may be more space than you need.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out**.

#### Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets  
– use this as a guide as to how much time to spend on each question.

#### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

**Answer ALL TWENTY questions.**

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

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

**1** (a) Write a number in each box so that each calculation is correct.

(i)  $65 \times \boxed{\phantom{000}} = 65\,000$

(ii)  $4.56 \div \boxed{\phantom{000}} = 0.0456$  (2)

(b) Here is a list of numbers.

-5                  3                  -7                  4                  1

Write down the smallest number in the list.

.....  
(1)

(c) Write down all the factors of 28

.....  
(2)

(d) Which two of the following numbers are prime numbers?

2      9      14      15      18      23      30

..... and .....,  
(2)

**(Total for Question 1 is 7 marks)**

**2** A Youth Club is having a quiz night.

There will be 17 teams at the quiz night.

There will be 4 people in each team.

There will also be 3 people to organise the quiz.

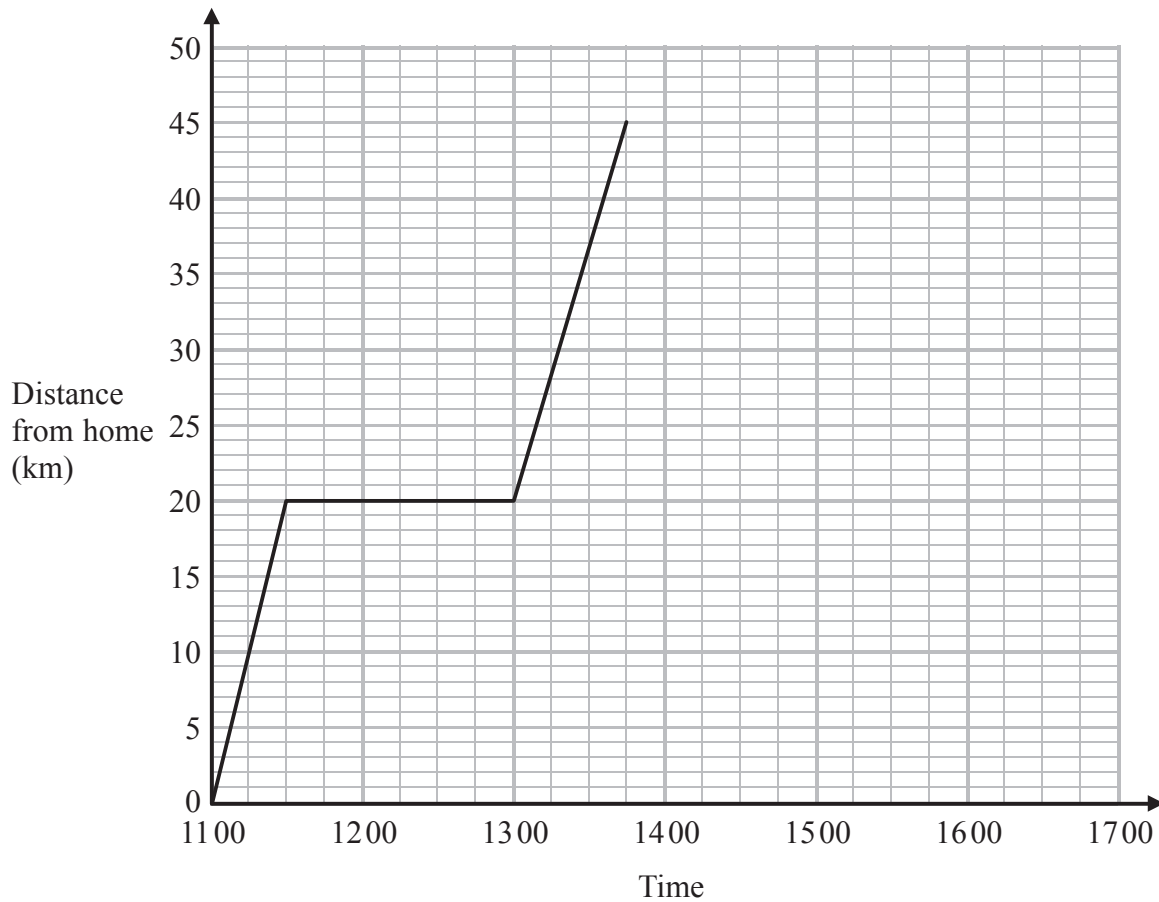
Each person at the quiz will need a chair.

Work out the number of chairs needed.

.....  
**(Total for Question 2 is 2 marks)**

---

- 3 Lia left home at 1100 to drive to a shopping centre. On her way, she stopped at a friend's house. Here is the distance-time graph for her journey to the shopping centre.



- (a) (i) For how many minutes did Lia stay at her friend's house?

..... minutes

- (ii) How far is it from her friend's house to the shopping centre?

..... km  
(2)

Lia stayed at the shopping centre for  $1\frac{1}{2}$  hours.

She then drove back home.

She arrived home at 16 30

- (b) Show all this information on the distance-time graph.

(2)

**(Total for Question 3 is 4 marks)**

- 4 The ocean liner Queen Mary 2 is the longest of its type.  
It has a length of 345 metres.

A scale model is made of the Queen Mary 2  
The scale of the model is 1 : 200

Work out the length of the scale model.  
Give your answer in centimetres.



..... cm

---

**(Total for Question 4 is 3 marks)**

5 (a) The temperature in Moscow is  $-12^{\circ}\text{C}$ .

The temperature in Rome is  $15^{\circ}\text{C}$  higher than in Moscow.

Work out the temperature in Rome.

.....  
 $^{\circ}\text{C}$   
(2)

(b) Work out

(i)  $7 - (-9)$

.....

(ii)  $-6 \times 5$

.....  
(2)

(c)

<b>Signs</b> +   - $\times$ $\div$
---------------------------------------

Write a sign in each box so that each of these statements are true.

(i)  $3 \square 6 \times 4 = 27$

(ii)  $3 \square 6 + 28 \square 4 = 25$

(2)

(d) Work out the cube of 5

.....  
(1)

(e) Find the square root of 256

.....  
(1)

**(Total for Question 5 is 8 marks)**

6 Here is a list of 12 numbers.

12    15    18    12    15    12    16    13    17    15    12    17

(a) Write down the mode.

.....  
(1)

(b) Work out the range.

.....  
(2)

(c) Work out the median.

.....  
(2)

(d) Work out the mean.

.....  
(2)

---

**(Total for Question 6 is 7 marks)**

---

7

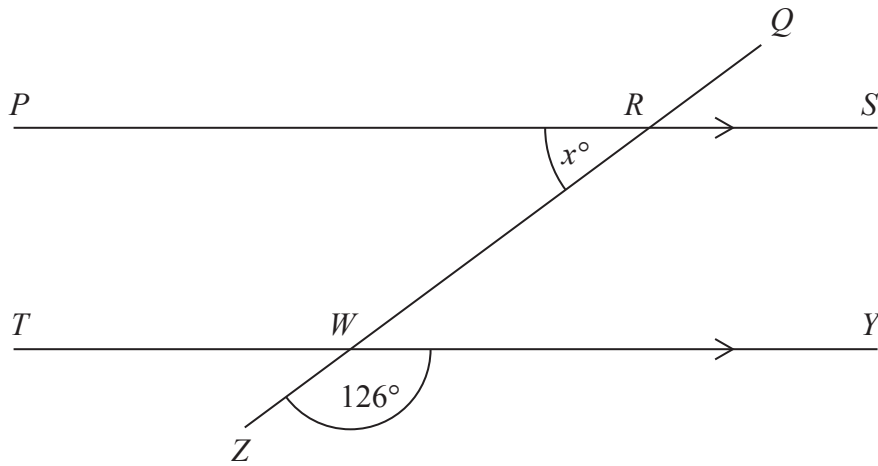


Diagram **NOT** accurately drawn

*PRS* and *TWY* are parallel straight lines.  
*QRWZ* is a straight line.

Work out the value of  $x$ .  
Give reasons for your answer.

---

(Total for Question 7 is 3 marks)



8

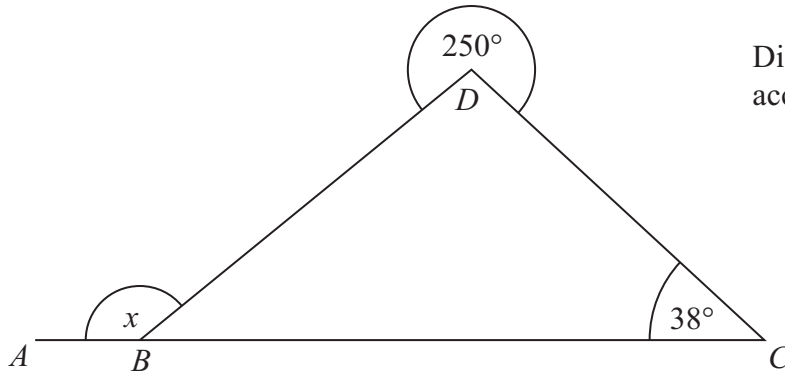


Diagram **NOT**  
accurately drawn

$ABC$  is a straight line.

Angle  $BCD = 38^\circ$

The reflex angle  $BDC = 250^\circ$

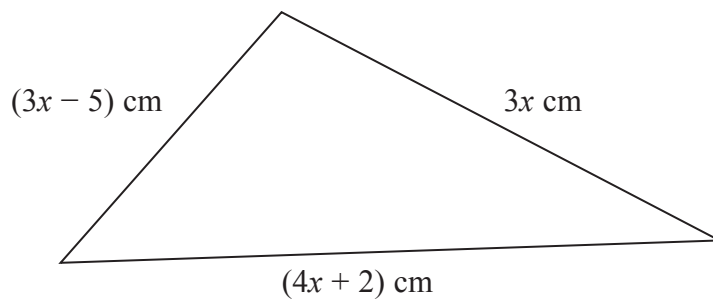
Work out the size of the angle marked  $x$ .

Give reasons for your answer.

---

(Total for Question 8 is 4 marks)

9 The diagram shows a triangle.



The lengths of the sides of the triangle are  $3x$  cm,  $(3x - 5)$  cm and  $(4x + 2)$  cm.

The perimeter of the triangle is 62 cm.

Work out the value of  $x$ .

Show clear algebraic working.

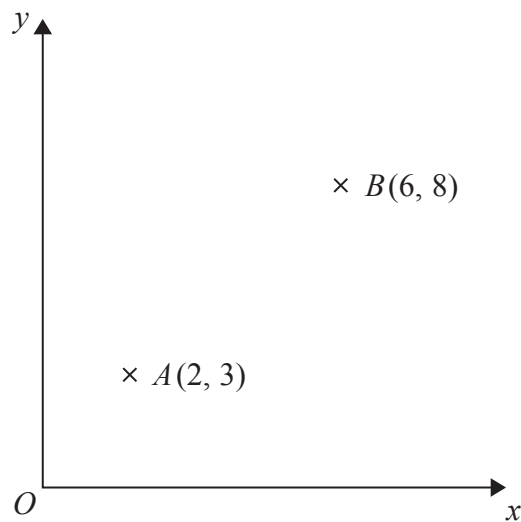
$x = \dots\dots\dots$

**(Total for Question 9 is 4 marks)**

- 10 The point  $A$  has coordinates  $(2, 3)$ .  
The point  $B$  has coordinates  $(6, 8)$ .

$M$  is the midpoint of the line  $AB$ .

Find the coordinates of  $M$ .



---

(Total for Question 10 is 2 marks)

---

**1 1** Here are the ingredients needed to make 10 pancakes.

<b>Pancakes</b>	
Ingredients to make <b>10</b> pancakes	
300 ml	of milk
120 g	of flour
2	eggs

Matthew makes 30 pancakes.

(a) Work out how much flour he uses.

.....g  
(2)

Tara makes some pancakes.  
She uses 750 ml of milk.

(b) Work out how many pancakes she makes.

.....  
(2)

---

**(Total for Question 1 1 is 4 marks)**

**12** On 1st May 2012, the cost of 5.7 grams of gold was 15 960 rupees.

(a) Work out the cost, in rupees, of 4.6 grams of gold on the same day.

..... rupees  
(2)

The cost of gold decreased by 7.5% from 1st May 2012 to 1st May 2013

(b) Work out the cost, in rupees, of 5.7 grams of gold on 1st May 2013

..... rupees  
(3)

---

**(Total for Question 12 is 5 marks)**

**13**  $-5 < y \leq 0$

$y$  is an integer.

(a) Write down all the possible values of  $y$ .

---

(2)

(b) Solve  $6(x - 2) > 15$

---

(2)

---

**(Total for Question 13 is 4 marks)**

---

**14** Pritam, Sarah and Emily share some money in the ratios 3 : 6 : 4  
Sarah gets \$15 more than Emily.

Work out the amount of money that Pritam gets.

\$ .....

**(Total for Question 14 is 2 marks)**

---

**15** There are 130 adults at a language school.  
Each adult studies one of French or Spanish or German.

96 of the adults are women.  
12 of the women study French.  
73 of the adults study Spanish.  
55 of the women study Spanish.  
9 of the men study German.

How many of the adults study French?

.....  
**(Total for Question 15 is 3 marks)**



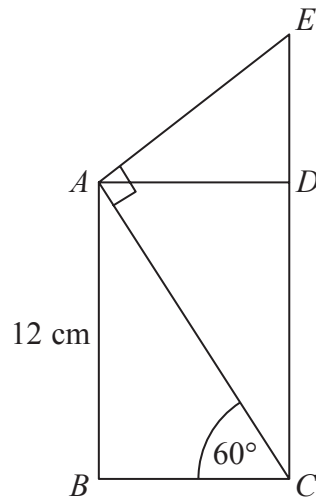


Diagram **NOT**  
accurately drawn

$ABCD$  is a rectangle.  
 $CDE$  is a straight line.

$AB = 12$  cm  
Angle  $ACB = 60^\circ$   
Angle  $EAC = 90^\circ$

Calculate the length of  $CE$ .  
You must show all your working.

..... cm

(Total for Question 16 is 4 marks)

17  $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$A = \{\text{multiples of 2}\}$

$A \cap B = \{2, 6\}$

$A \cup B = \{1, 2, 3, 4, 6, 8, 9, 10\}$

Draw a Venn diagram for this information.

---

**(Total for Question 17 is 4 marks)**

**18** John changes £450 to euros.

The exchange rate is £1 = 1.16 euros.

(a) Change £450 to euros.

..... euros  
(2)

When in Amsterdam, John uses his credit card to pay for a ring costing 850 euros.

He has to pay a bank charge of £3.50 for using his credit card in addition to the cost of the ring.

(b) Work out the total cost, in pounds (£), of the ring and the bank charge.

£ .....  
(3)

---

**(Total for Question 18 is 5 marks)**

**19** Solve the simultaneous equations

$$\begin{aligned}5y - 4x &= 8 \\ y + x &= 7\end{aligned}$$

Show clear algebraic working.

$x = \dots\dots\dots$

$y = \dots\dots\dots$

**(Total for Question 19 is 3 marks)**

**20** In a box of pens, there are

three times as many red pens as green pens  
**and** two times as many green pens as blue pens.

For the pens in the box, write down  
the ratio of the number of red pens to the number of green pens to the number of blue pens.

.....  
**(Total for Question 20 is 2 marks)**

---