

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										



General Certificate of Secondary Education  
Foundation Tier  
June 2015

# Mathematics (Linear)

4365/2F

## Paper 2

Thursday 11 June 2015 1.30 pm to 3.15 pm

**F**

<p><b>For this paper you must have:</b></p> <ul style="list-style-type: none"> <li>• a calculator</li> <li>• mathematical instruments.</li> </ul>	
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### Time allowed

- 1 hour 45 minutes

### Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book.

### Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 105.
- The quality of your written communication is specifically assessed in Questions 7, 16 and 18. These questions are indicated with an asterisk (\*).
- You may ask for more answer paper, tracing paper and graph paper. These must be tagged securely to this answer book.

### Advice

- In all calculations, show clearly how you work out your answer.

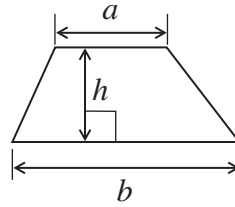
For Examiner's Use	
Examiner's Initials	
Pages	Mark
3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
14 – 15	
16 – 17	
18 – 19	
20 – 21	
22 – 23	
24 – 25	
26 – 27	
28 – 29	
30	
TOTAL	



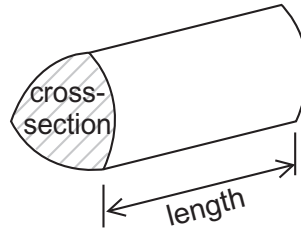
J U N 1 5 4 3 6 5 2 F 0 1

**Formulae Sheet: Foundation Tier**

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



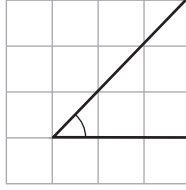
**Volume of prism** = area of cross-section  $\times$  length



Answer **all** questions in the spaces provided.

- 1 (a) Circle the word that describes the marked angle.

[1 mark]



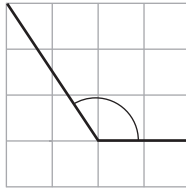
Reflex

Obtuse

Acute

- 1 (b) Circle the word that describes the marked angle.

[1 mark]



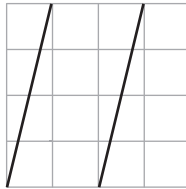
Reflex

Obtuse

Acute

- 1 (c) Circle the word that describes the **two** lines drawn on the square grid.

[1 mark]



Vertical

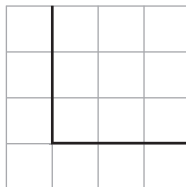
Horizontal

Perpendicular

Parallel

- 1 (d) Circle the word that describes the **two** lines drawn on the square grid.

[1 mark]



Vertical

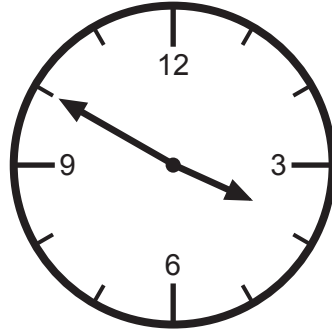
Horizontal

Perpendicular

Parallel



2 (a)



What time in the afternoon is shown on the clock?  
Circle your answer.

[1 mark]

- 13:10                  13:50                  15:10                  15:50

2 (b) Here is a TV programme list.

10:00 – 11:45	Gymnastics
11:45 – 13:15	Basketball
13:15 – 14:30	Swimming
14:30 – 22:30	Cricket
22:30 – 00:15	Highlights

John watches Swimming and half of the Cricket.

How long does he spend watching TV?  
Give your answer in hours and minutes.

[2 marks]

.....

.....

.....

Answer ..... hours ..... minutes



- 2 (c)** Here is the **same** TV programme list.  
The times are shown using the 12-hour clock system.

Complete the missing times using the 12-hour clock system.

**[2 marks]**

10:00 am –	11:45 am	Gymnastics
11:45 am –	1:15 pm	Basketball
1:15 pm –	..... pm	Swimming
..... pm –	10:30 pm	Cricket
10:30 pm –	..... am	Highlights

- 3** Here are some statements about a trapezium.

Tick whether each one is true or false.

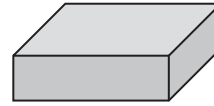
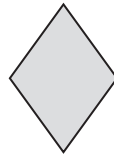
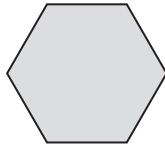
**[3 marks]**

	<b>True</b>	<b>False</b>
It has two parallel sides	<input type="checkbox"/>	<input type="checkbox"/>
It has three right angles	<input type="checkbox"/>	<input type="checkbox"/>
It has two lines of symmetry	<input type="checkbox"/>	<input type="checkbox"/>



4 Join each shape with its correct name.

[2 marks]



Cuboid

Rhombus

Cylinder

Hexagon

5 8 counters are in a bag.  
The counters are blue, white or yellow.

One counter is taken at random from the bag.

The chance it is blue is evens.

The chance it is white is more likely than yellow.

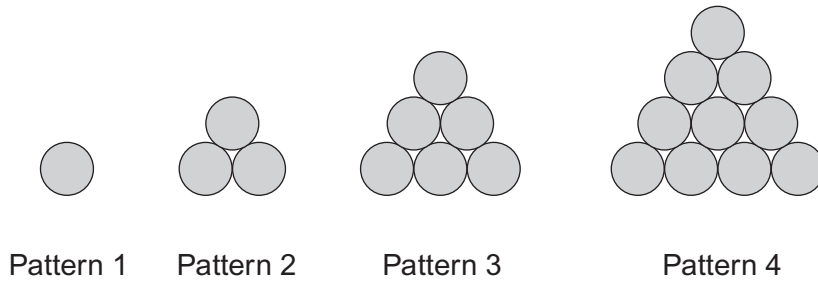
How many counters of each colour are in the bag?  
Write your answers in the table.

[2 marks]

Colour	Blue	White	Yellow
Number in the bag			



6 Circles are used to make a sequence of patterns.



6 (a) Complete this table.

<b>Pattern number</b>	1	2	3	4	5
<b>Number of circles</b>	1	3	6	10	

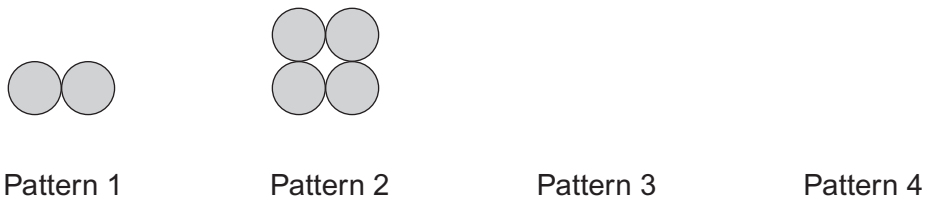
[1 mark]

6 (b) Here is a formula for a **different** sequence of patterns.

$$\text{Number of circles} = \text{Pattern number} \times 2$$

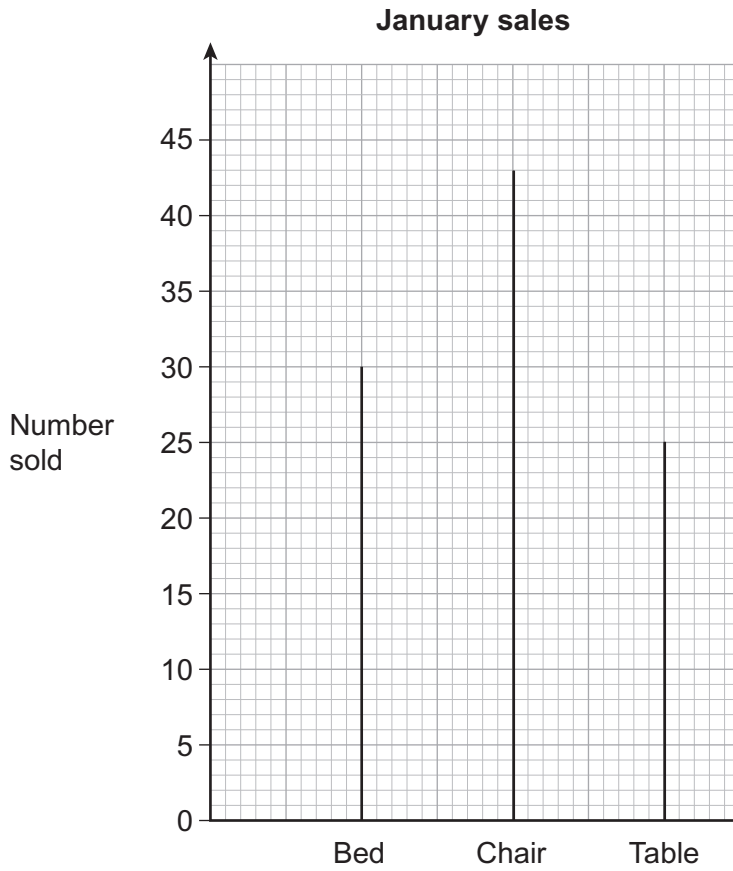
Use this formula to draw Pattern 3 and Pattern 4  
Pattern 1 and Pattern 2 are drawn for you.

[2 marks]



7 A shop sells beds, chairs and tables.

7 (a) The graph shows information about the number of items sold in **January**.



Work out the **total** number of items sold in January.

**[2 marks]**

Answer .....





\*7 (b) Here is some information about the number of items sold in **February**.

	<b>Bed</b>	<b>Chair</b>	<b>Table</b>	
<b>Number sold</b>	55			Total = 155

The number of chairs sold was **20 more** than the number of tables sold.

Draw a pictogram to show the number of items sold in February.  
Use the key given.

[4 marks]

**February sales**

Key:  represents 10 items sold

**Bed**

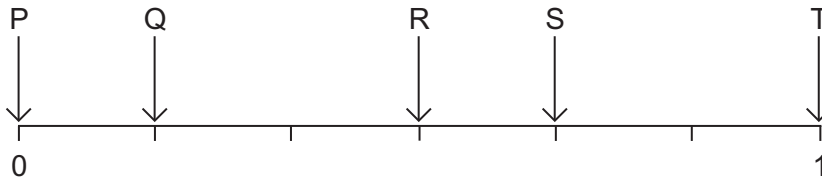
**Chair**

**Table**

**Turn over for the next question**



8 Here is a probability scale.

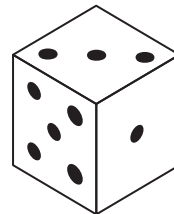


8 (a) Which letter represents certain?

[1 mark]

Answer .....

8 (b) An ordinary fair 6-sided dice is rolled.



Write the letter of the arrow that matches the probability of each of the following.  
The first one has been done for you.

[2 marks]

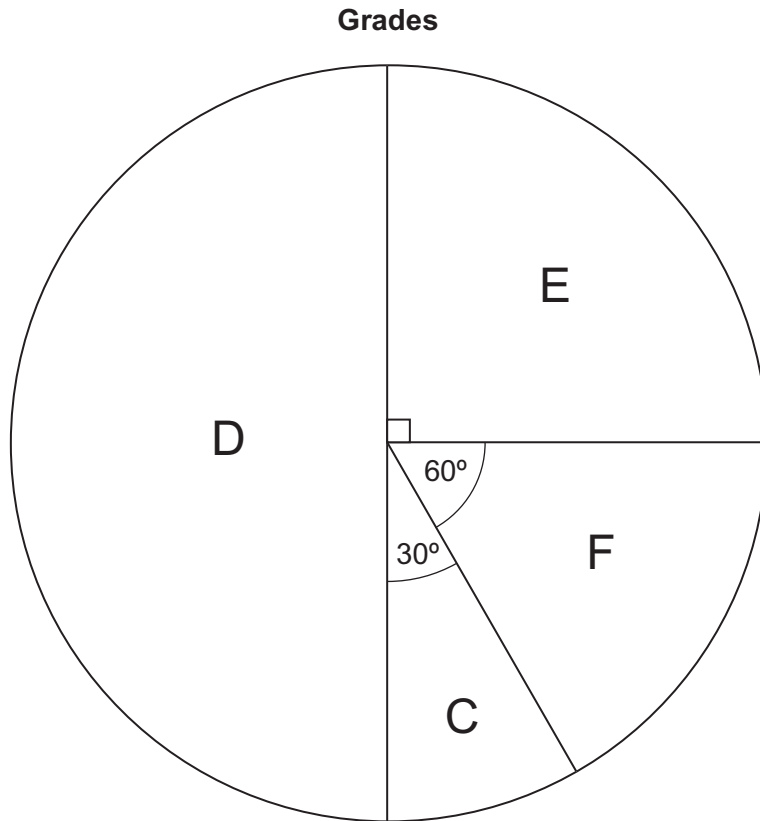
Rolling a number less than 5 ..... S

Rolling an even number .....

Rolling a 3 .....



9 The pie chart shows information about the grades of 240 students in a test.



9 (a) How many students get grade C?

[2 marks]

.....

.....

Answer .....

9 (b) What fraction of the students get grade F?  
Give your answer in its simplest form.

[2 marks]

.....

.....

Answer .....

7

Turn over ►



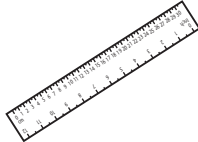
**10** A school shop sells these items.

Pen



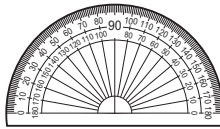
£1.25

Ruler




15p

Protractor



30p

Calculator



£1.20

**10 (a)** Write down an expression for the cost of  $x$  rulers in pence.

**[1 mark]**

Answer ..... pence

**10 (b)** Write down an expression for the cost of  $y$  protractors and  $w$  calculators.  
Give your answer in pence.

**[2 marks]**

.....

Answer ..... pence



**10 (c)** Paul bought **three** items.  
He paid with a £5 note.  
His change was £1.35

Which items did he buy?

**[3 marks]**

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.....  
.....

Item 1 .....

Item 2 .....

Item 3 .....

**10 (d)** A set has one pen, one ruler, one protractor and one calculator.

Work out the maximum number of sets that can be bought with £20

**[3 marks]**

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Answer .....



**11 (a)** There are 180 people in a cinema.

$\frac{3}{5}$  of the people are adults.

$\frac{1}{4}$  of the adults are female.

How many of the adults are female?

**[3 marks]**

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Answer .....

**11 (b)** 30% of the 180 people buy popcorn.

How many people buy popcorn?

**[2 marks]**

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Answer .....



12 The stem-and-leaf diagram shows how long Dylan used the internet on 15 days.



Key: 2 | 3 represents 23 minutes

The first 35 minutes on the internet each day are free.  
The charge is £1.45 for each minute **above** 35 minutes.

Work out the total charge for using the internet on the 15 days.

**[4 marks]**

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Answer £ .....

**Turn over for the next question**

**Turn over** ►



13 Here are two timetables for trains to London.

**Train timetable Monday to Friday**

<b>Sheffield</b>	06:47	07:41	08:27	09:27	10:27
<b>Chesterfield</b>	06:59	07:55	08:39	09:39	10:39
<b>Leicester</b>	07:52	08:52	09:23	10:23	11:23
<b>Kettering</b>	08:14				
<b>London</b>	09:09	10:05	10:34	11:34	12:33

**Train timetable Monday to Friday**

<b>Nottingham</b>	06:28	06:49	08:02	09:02	10:02
<b>Leicester</b>	06:57	07:17	08:33	09:33	10:33
<b>Kettering</b>	07:22	07:42	08:56	09:56	10:56
<b>Luton Airport</b>	08:15	08:30	09:34	10:34	11:34
<b>London</b>	08:24	08:43	10:00	11:01	12:00

13 (a) Ryan catches the 06:47 train from Sheffield.  
He gets off the train at Kettering.

He spends 30 minutes in Kettering station café.  
He then catches the next train to London.

What time does he arrive in London?

[1 mark]

.....

Answer .....





**13 (b)** There are **no direct** trains from Sheffield to Luton Airport.

Lucy wants to go from Sheffield to Luton Airport.  
She wants to arrive at Luton Airport between 10:00 and 11:00  
She wants to leave Sheffield as late as possible.

Complete the places and times to plan her journey.

**[4 marks]**

Depart Sheffield at .....

Arrive ..... at .....

Depart ..... at .....

Arrive Luton Airport at .....

**Turn over for the next question**

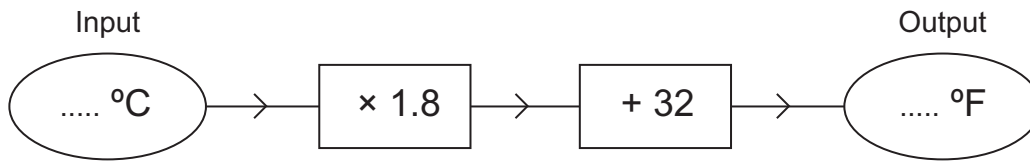
5

**Turn over ►**

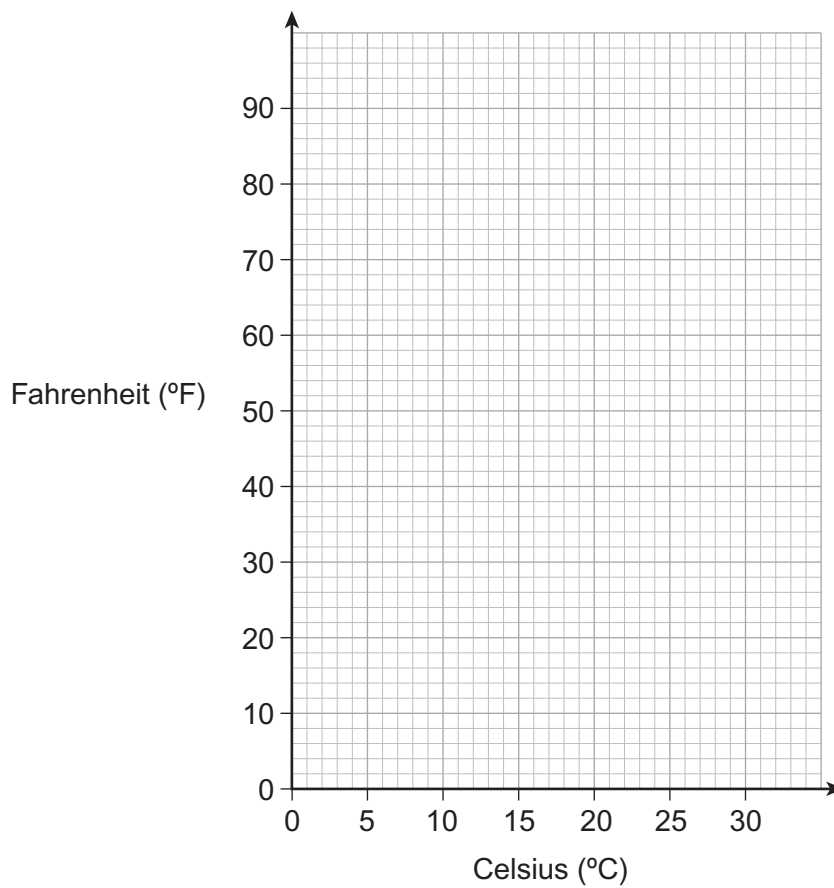


- 14 This number machine converts from Celsius ( $^{\circ}\text{C}$ ) to Fahrenheit ( $^{\circ}\text{F}$ ).

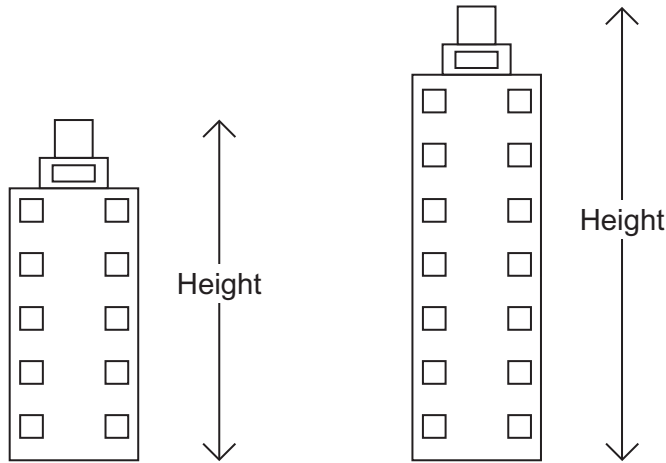
[4 marks]



Use the number machine to draw a conversion graph from  $^{\circ}\text{C}$  to  $^{\circ}\text{F}$ .



15 Here is a scale drawing of two buildings.



The **difference** between the actual heights of the buildings is 20 metres.

Work out the height of the taller building.

[4 marks]

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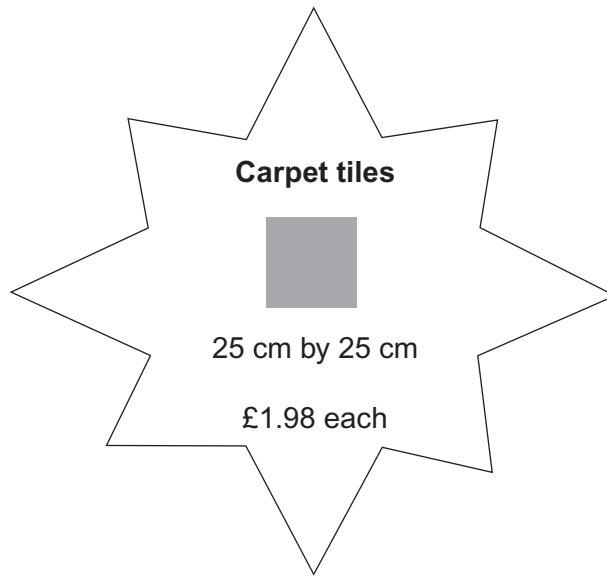
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Answer ..... m



**16 (a)** Liam wants to carpet his bedroom floor with tiles.

The floor is a rectangle measuring 5 metres by 3 metres.



Liam buys the exact number of tiles needed.

How much does he pay?

**[4 marks]**

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Answer £ .....



**\*16 (b)** Kim buys a carpet for a room.  
  
The carpet measures 6 metres by 6 metres.  
Kim pays £390 for the carpet.  
  
The room measures 5 metres by 5 metres.  
  
Work out the cost of the carpet she does **not** use.

**[4 marks]**

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Answer £ .....

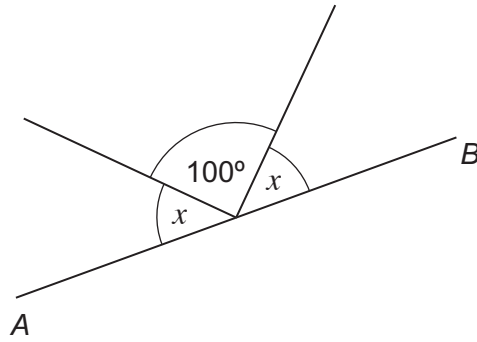
**Turn over for the next question**

8
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**Turn over ►**



17 (a) AB is a straight line.



Not drawn accurately

Work out the size of angle  $x$ .

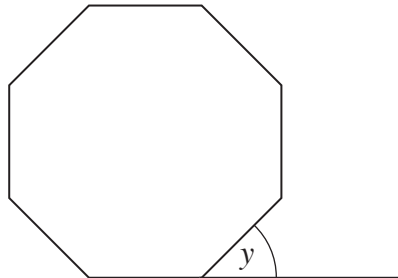
[2 marks]

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Answer ..... degrees

17 (b) The diagram shows a regular octagon.



Not drawn accurately

The base line of the octagon is extended.

Work out the size of angle  $y$ .

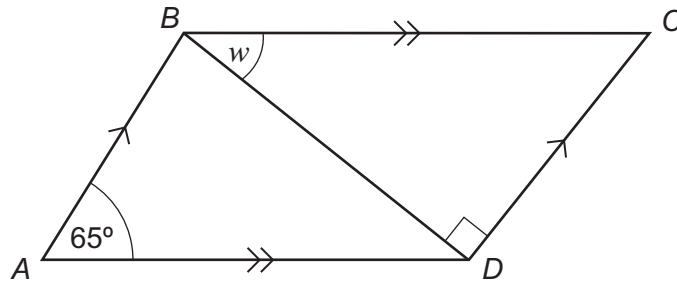
[2 marks]

.....

Answer ..... degrees



- 17 (c)  $ABCD$  is a parallelogram.  
 $BD$  is a diagonal.



Not drawn  
accurately

Work out the size of angle  $w$ .

[3 marks]

.....

.....

Answer ..... degrees

Turn over for the next question



**\*18** Laura buys a saddle in the UK for £850  
Delivery is free.



Steve buys the same saddle from Holland for 990 Euros.  
He pays 15 Euros for delivery.

£1 = 1.18 Euros

Including the delivery charge, whose saddle is **cheaper**?  
You **must** show your working.

**[3 marks]**

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Answer .....





19 (a) Expand and simplify  $3(2x - 1) + 2(x - 3)$

[2 marks]

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.....

Answer .....

19 (b) Write down the whole numbers that satisfy  $3 < 2n \leq 10$

[2 marks]

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.....

Answer .....

19 (c) Solve  $4(3x - 5) = 22$

[3 marks]

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.....  
.....

$x =$  .....



20

A drink is made by mixing 650 ml of water with 150 ml of fruit juice.

What percentage of the drink is fruit juice?

[2 marks]

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.....

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.....

Answer ..... %



21 (a) Divide £720 in the ratio 5 : 1

[2 marks]

.....  
.....

Answer £ ..... and £ .....

21 (b) Sarah has £135  
Gemma has £70  
Beth has £35

Sarah gives some money to Gemma and Beth.

The ratio of the amount of money Sarah, Gemma and Beth have **now** is 3 : 2 : 1

How much money did Sarah give to Gemma?

[4 marks]

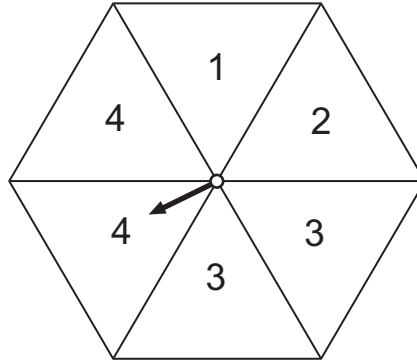
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Answer £ .....



22

The arrow on this spinner is equally likely to land on each section.



The arrow is spun 72 times.

How many times do you expect the arrow to land on 4?

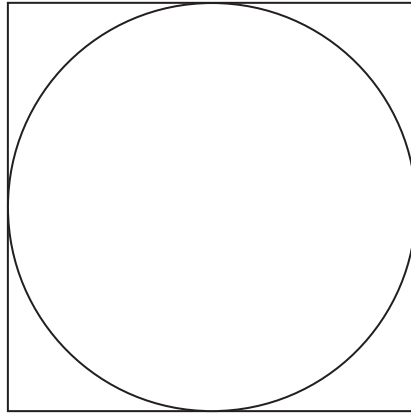
**[2 marks]**

.....

Answer .....



**23** The area of this square is  $36 \text{ cm}^2$



Not drawn  
accurately

Work out the circumference of the circle.

**[3 marks]**

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Answer ..... cm

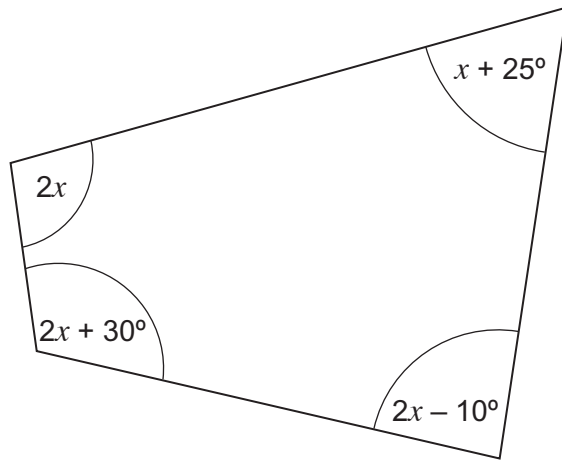
**Turn over for the next question**

5

**Turn over** ►



24 The diagram shows a quadrilateral.



Not drawn  
accurately

Work out the value of  $x$ .

[4 marks]

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Answer ..... degrees

**END OF QUESTIONS**

4



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