

**Modified Enlarged 24pt**  
**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Tuesday 5 November 2019 – Morning**

**GCSE (9–1) Mathematics**

**J560/01 Paper 1 (Foundation Tier)**

**Time allowed: 1 hour 30 minutes  
plus your additional time allowance**

**YOU MUST HAVE:**

**Insert for question 19**

**YOU MAY USE:**

**a scientific or graphical calculator**

**geometrical instruments**

**tracing paper**

**a model for question 1(b)**

**Please write clearly in black ink.**

**Centre number**

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**Candidate number**

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**First name(s)** \_\_\_\_\_

**Last name** \_\_\_\_\_

**READ INSTRUCTIONS OVERLEAF**



# **INSTRUCTIONS**

**Use black ink. You may use an HB pencil for graphs and diagrams.**

**Answer ALL the questions.**

**Read each question carefully before you start to write your answer.**

**Where appropriate, your answers should be supported with working. Marks may be given for a correct method even if the answer is incorrect.**

**Write your answer to each question in the space provided.**

**Additional paper may be used if required, but you must clearly show your candidate number and question number(s).**

## **INFORMATION**

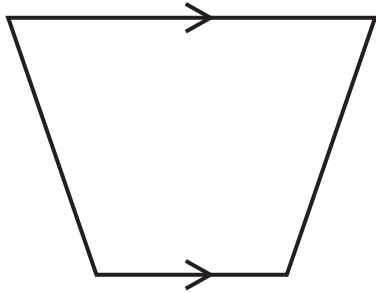
**The total mark for this paper is 100.**

**The marks for each question are shown in brackets [ ].**

**Use the  $\pi$  button on your calculator or take  $\pi$  to be 3.142 unless the question says otherwise.**

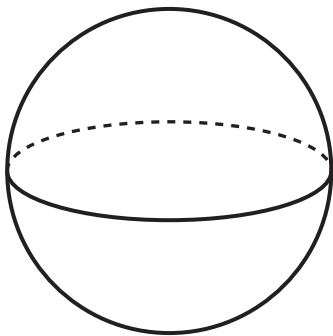
**Answer ALL the questions.**

- 1 (a) Write down the mathematical name of this quadrilateral.**



**(a) \_\_\_\_\_ [1]**

- (b) Write down the mathematical name of this solid. You may use a model to help you.**



**(b) \_\_\_\_\_ [1]**

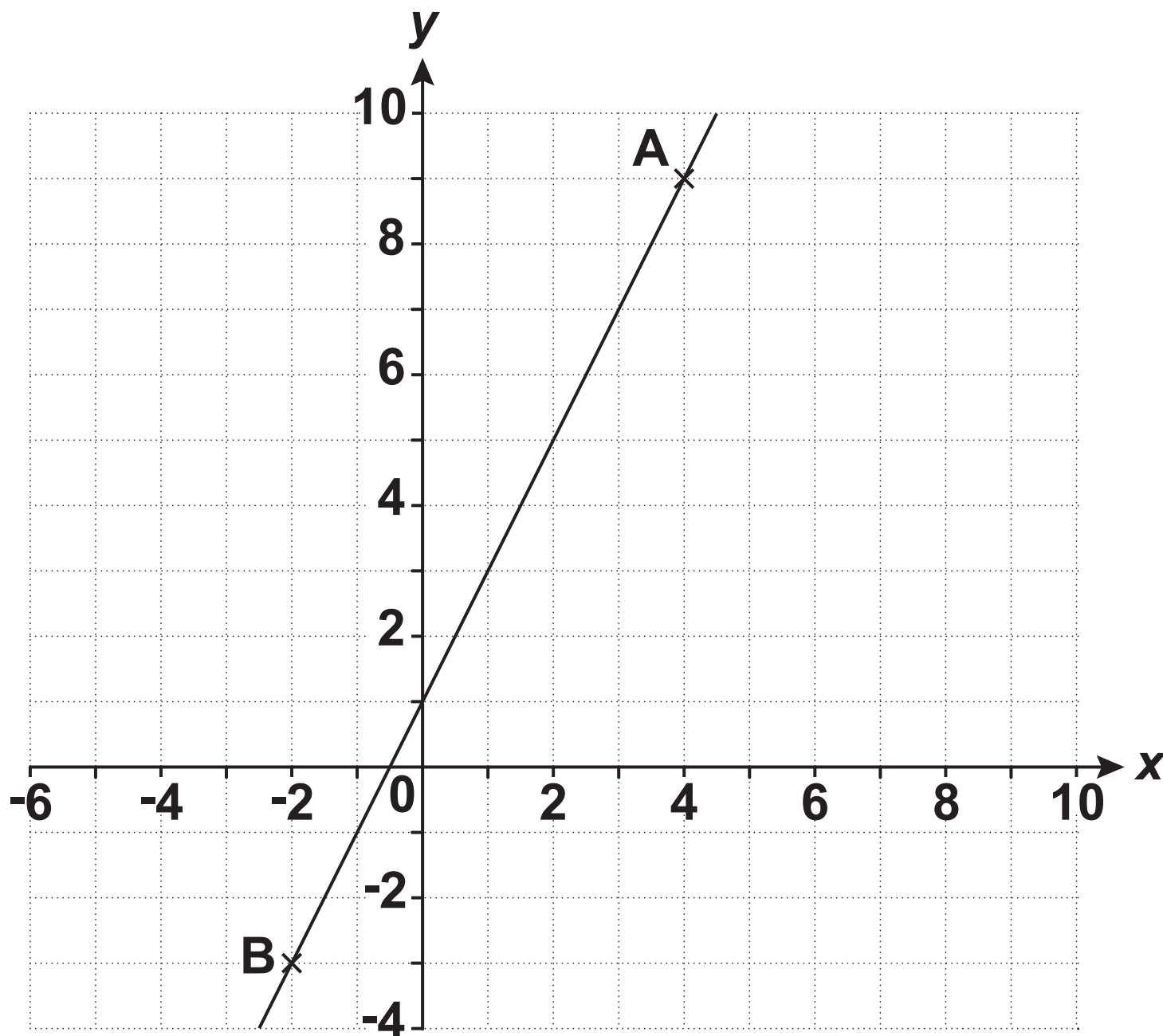
**2 (a) Complete this list to show all the factors of 30.**

<b>1</b>	<b>2</b>	_____	_____	
_____	<b>10</b>	_____	<b>30</b>	<b>[2]</b>

**(b) Write down the highest common factor (HCF) of 25 and 30.**

**(b) \_\_\_\_\_ [1]**

**3** Line AB is shown on this coordinate grid.



**(a) Write down the coordinates of**

**(i) point A,**

**(a)(i) ( \_\_\_\_\_ , \_\_\_\_\_ ) [1]**

**(ii) point B.**

**(ii) ( \_\_\_\_\_ , \_\_\_\_\_ ) [1]**

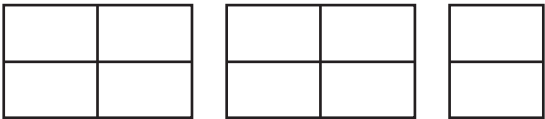

**(b) Plot point C on the grid at (7, -2). [1]**

**(c) The equation of line AB is  $y = 2x + 1$ .  
A line parallel to AB goes through  
the point (0, 4).**

**Write down the equation of the  
parallel line.**

**(c) \_\_\_\_\_ [2]**

- 4 A theme park asked 900 people to choose their favourite activity from a list of five. The pictogram shows the results for four of the activities.**

<b>Thrill rides</b>	
<b>Family rides</b>	
<b>Entertainment</b>	
<b>Children's rides</b>	
<b>Water rides</b>	

**Key:**  **represents 100 people**



**(a) (i) How many people chose entertainment?**

**(a)(i) \_\_\_\_\_ [1]**

**(ii) How many MORE people chose water rides than family rides?**

**(ii) \_\_\_\_\_ [2]**

**(iii) All 900 people chose one of the five activities.**

**Complete the pictogram for children's rides. [3]**

**(b) Will plays a game at the theme park.  
There are 20 cards numbered from 1  
to 20.  
Will takes a card at random.  
He wins if the card he chooses  
shows a prime number.**

**Work out the probability that Will  
wins.**

**Give your answer as a fraction in its  
simplest form.**

**(b)** \_\_\_\_\_ **[4]**

**(c) A family ticket for the theme park costs £68.  
If the ticket is bought online it costs 15% less.**

**How much does it cost to buy a family ticket online?**

**(c) £ \_\_\_\_\_ [3]**

**5 Simplify.**

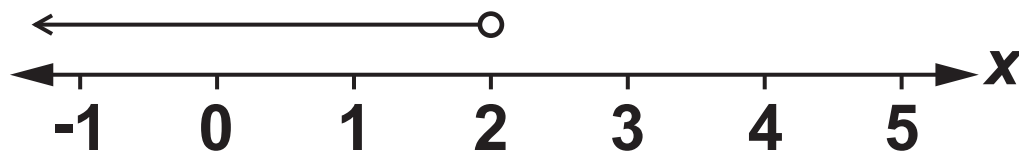
**(a)  $4a + 5a - 7a$**

**(a) \_\_\_\_\_ [1]**

**(b)  $3g - 2f + 8g + 5f$**

**(b) \_\_\_\_\_ [2]**

- 6 Write down the inequality shown on this number line.



\_\_\_\_\_ [2]

**7 Factorise fully.**

**(a)  $6 + 9y$**

**(a) \_\_\_\_\_ [1]**

**(b)  $2x^2 + 6x$**

**(b) \_\_\_\_\_ [2]**

**8 Plaza United are playing a football match away from home.**

**(a) 379 supporters are going to the match by coach.  
Each coach seats 45 people.**

**What is the smallest number of coaches that will be needed?**

**(a) \_\_\_\_\_ [2]**



**(b) In their last 50 matches, Plaza United have drawn 10 matches, lost 5 and won the rest.**

**Sam claims**

**The probability that Plaza United will win this match is 0.7.**

**(i) Show calculations to support Sam's claim. [2]**

**(ii) Give one reason why Sam's claim may not be reliable.**

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**[1]**

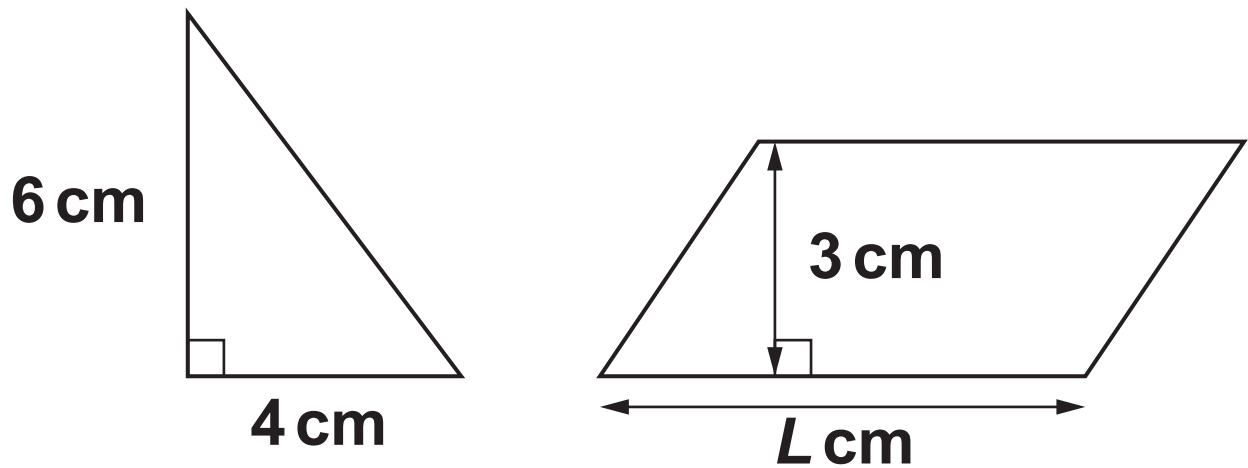
- 9 Mr and Mrs Jones buy cinema tickets for themselves and their three children. The cost of an adult ticket is £6 more than a child ticket. The total cost of the FIVE tickets is £45.**

**Work out the cost of an adult ticket.**

**An adult ticket costs £\_\_\_\_\_ [5]**

**10 The area of the parallelogram is four times the area of the triangle.**

**NOT TO SCALE**



**Calculate the length,  $L$ , of the parallelogram.**

\_\_\_\_\_ cm **[5]**

**11 Harry has a job.  
On Friday, he is paid £8.50 per hour.  
On Saturday, he is paid  $1\frac{1}{2}$  times that  
rate.**

**He works for 4 hours on Friday.  
He works from 8 am until 1 pm on  
Saturday.**

**How much does Harry earn in total for  
these two days?**

**£ \_\_\_\_\_ [6]**

**12 The volume of a cube is  $125\text{ cm}^3$ .**

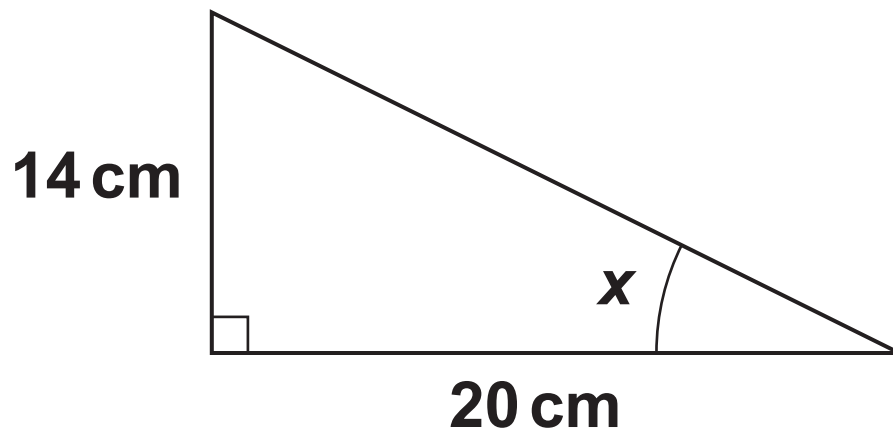
**Calculate the total surface area of the cube.**

**Give the units of your answer.**

\_\_\_\_\_ **[5]**

**13 Here is a right-angled triangle.**

**NOT TO SCALE**



**Show that angle  $x$  is  $35^\circ$ , correct to the nearest degree. [3]**



**14 Dean drives a distance of 760 km in 9 hours.  
Robert drives a distance of 559 km in 6 hours 30 minutes.**

**Who has the highest average speed?  
Show how you decide.**

\_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_ [4]

- 15 Andrea is 165 cm tall, correct to the nearest cm.  
Joel is 170 cm tall, correct to the nearest 10 cm.**

**Show that Andrea could be taller than Joel. [3]**

- 16 Carol makes birthday cards.  
Each card takes the same amount of time to make.**

**She makes 3 cards in 48 minutes.  
She has an order for 80 cards.**

**Can she complete this order in 3 days if she works 8 hours each day?  
Show how you decide.**

\_\_\_\_\_ **because** \_\_\_\_\_

\_\_\_\_\_ **[5]**

**17 The table below shows the area, in square kilometres (km<sup>2</sup>), of some countries.**

<b>Country</b>	<b>Area (km<sup>2</sup>)</b>
<b>Australia</b>	<b><math>7.69 \times 10^6</math></b>
<b>Latvia</b>	<b><math>6.46 \times 10^4</math></b>
<b>Luxembourg</b>	<b><math>2.59 \times 10^3</math></b>
<b>Russia</b>	<b><math>1.71 \times 10^7</math></b>
<b>Singapore</b>	<b><math>7.24 \times 10^2</math></b>
<b>Sweden</b>	<b><math>4.50 \times 10^5</math></b>

**(a) Write the area of Sweden as an ordinary number.**

**(a) \_\_\_\_\_ km<sup>2</sup> [1]**

**(b) Which of the above countries has the smallest area?**

**(b) \_\_\_\_\_ [1]**

(c) Alexis says

The area of Australia is approximately three times larger than the area of Luxembourg.

Is she correct?  
Show how you decide.

Alexis is \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_ [2]

- (d) Work out the total area of Russia and Australia.  
Give your answer in standard form,  
correct to 2 significant figures.**

**(d) \_\_\_\_\_ km<sup>2</sup> [4]**

- 18 Bob makes dry concrete by mixing cement, sand and stone in the ratio 1 : 2 : 3 by weight.  
He buys the cement, sand and stone in bags as shown in this table.**

	<b>Weight of bag (kg)</b>	<b>Cost per bag (£)</b>
<b>Cement</b>	<b>25</b>	<b>5.50</b>
<b>Sand</b>	<b>20</b>	<b>2.00</b>
<b>Stone</b>	<b>15</b>	<b>3.90</b>

**He packs the dry concrete into 30 kg bags.**

**Bob buys just enough cement, sand and stone to make 50 bags of dry concrete.**

**(a) Show that Bob buys 500 kg of sand. [3]**

**(b) Bob sells the 50 bags of dry concrete for a total of £396.**

**Calculate Bob's percentage profit.**

**(b) \_\_\_\_\_ % [5]**



**19 12 students take two tests.  
Each test is out of 60.  
The scatter diagram on the insert  
shows the results for 10 of the  
students.**

**(a) The table shows the results for the  
other 2 students.**

<b>Test 1</b>	<b>36</b>	<b>38</b>
<b>Test 2</b>	<b>44</b>	<b>41</b>

**Plot these results on the scatter  
diagram. [1]**

**(b) Describe the type of correlation  
shown in the scatter diagram.**

**(b) \_\_\_\_\_ [1]**

**(c) (i) Draw a line of best fit on the scatter diagram. [1]**

**(ii) Another student was absent for Test 2.  
The student scored 40 marks on Test 1.**

**Use your line of best fit to estimate a result for this student on Test 2.**

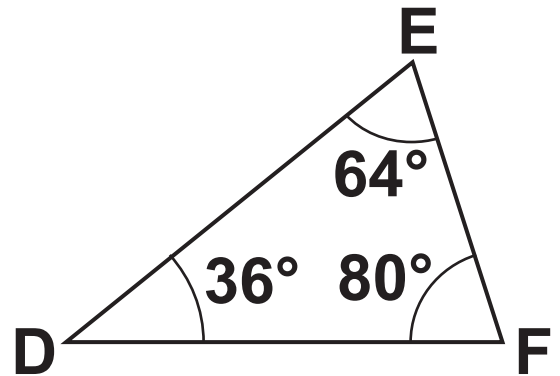
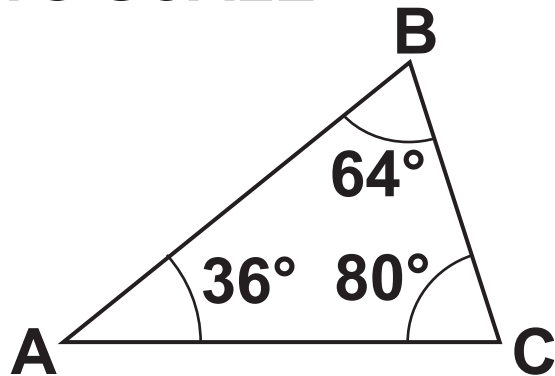
**(c)(ii) \_\_\_\_\_ [1]**

**(d) Work out the percentage of THE  
12 STUDENTS whose result on  
Test 1 is LOWER than their result on  
Test 2.**

**(d) \_\_\_\_\_ % [4]**

20 (a) Are these two triangles definitely congruent?  
Give a reason.

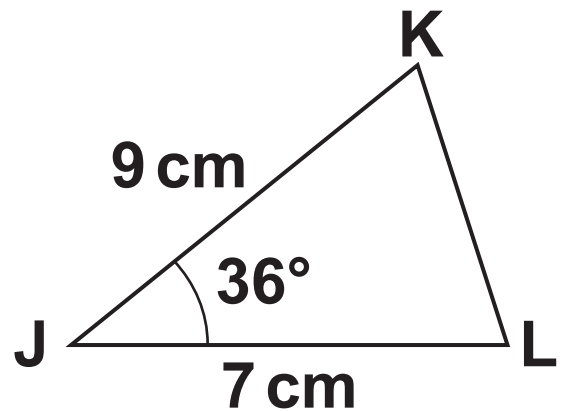
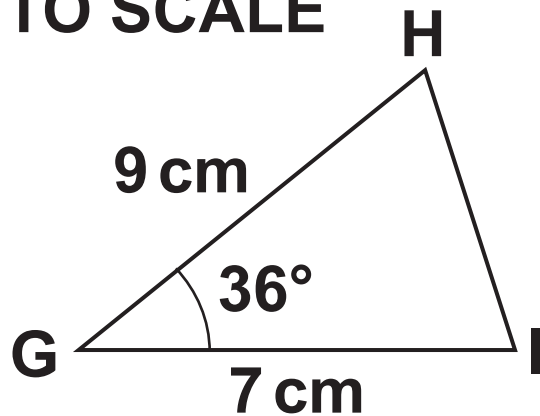
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\_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ [1]

**(b) Prove that these two triangles are congruent.**

**NOT TO SCALE**



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**[3]**

**END OF QUESTION PAPER**

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