

Candidate Name	Centre Number	Candidate Number

WELSH JOINT EDUCATION COMMITTEE  
General Certificate of Secondary Education



CYD-BWYLLGOR ADDYSG CYMRU  
Tystysgrif Gyffredinol Addysg Uwchradd

**MATHEMATICS**  
**SPECIMEN EXAMINATION**  
**FOUNDATION TIER PAPER 1**

SUMMER 2009

(2 Hours)

<b>CALCULATORS ARE NOT TO BE USED FOR THIS PAPER</b>
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**INSTRUCTIONS TO CANDIDATES**

Write your name, centre number and candidate number in the spaces at the top of this page.

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

Take  $\pi$  as 3.14.

**INFORMATION FOR CANDIDATES**

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

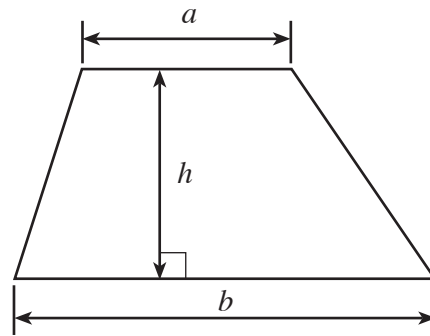
The number of marks is given in brackets at the end of each question or part-question.

No certificate will be awarded to a candidate detected in any unfair practice during the examination.

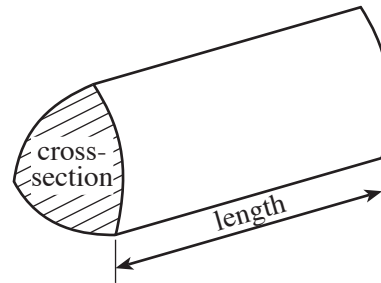
For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	6	
2	4	
3	5	
4	6	
5	8	
6	4	
7	3	
8	4	
9	4	
10	9	
11	12	
12	4	
13	3	
14	3	
15	4	
16	3	
17	7	
18	4	
19	5	
20	2	
<b>TOTAL MARK</b>		

**Formula List**

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



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



1. (a) Write the following numbers in order of size, starting with the smallest.

212    202    22    12    122    221    102

.....  
[1]

- (b) Write down

(i) the sum of 37 and 74,

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.....

(ii) the answer when you subtract 46 from 80,

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(iii) the answer to 9 multiplied by 8,

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(iv) the answer when 96 is divided by 12.

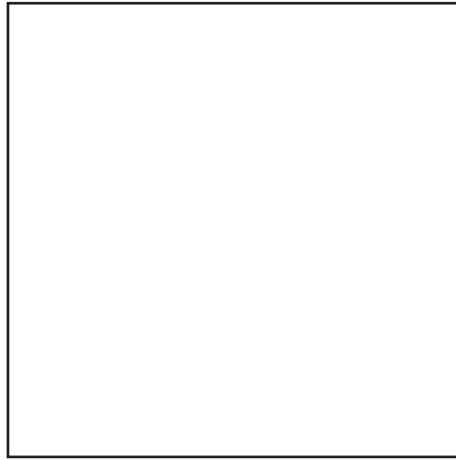
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[4]

- (c) A house costs one hundred and fifteen thousand seven hundred and fifty pounds. Write this amount in figures.

.....  
[1]

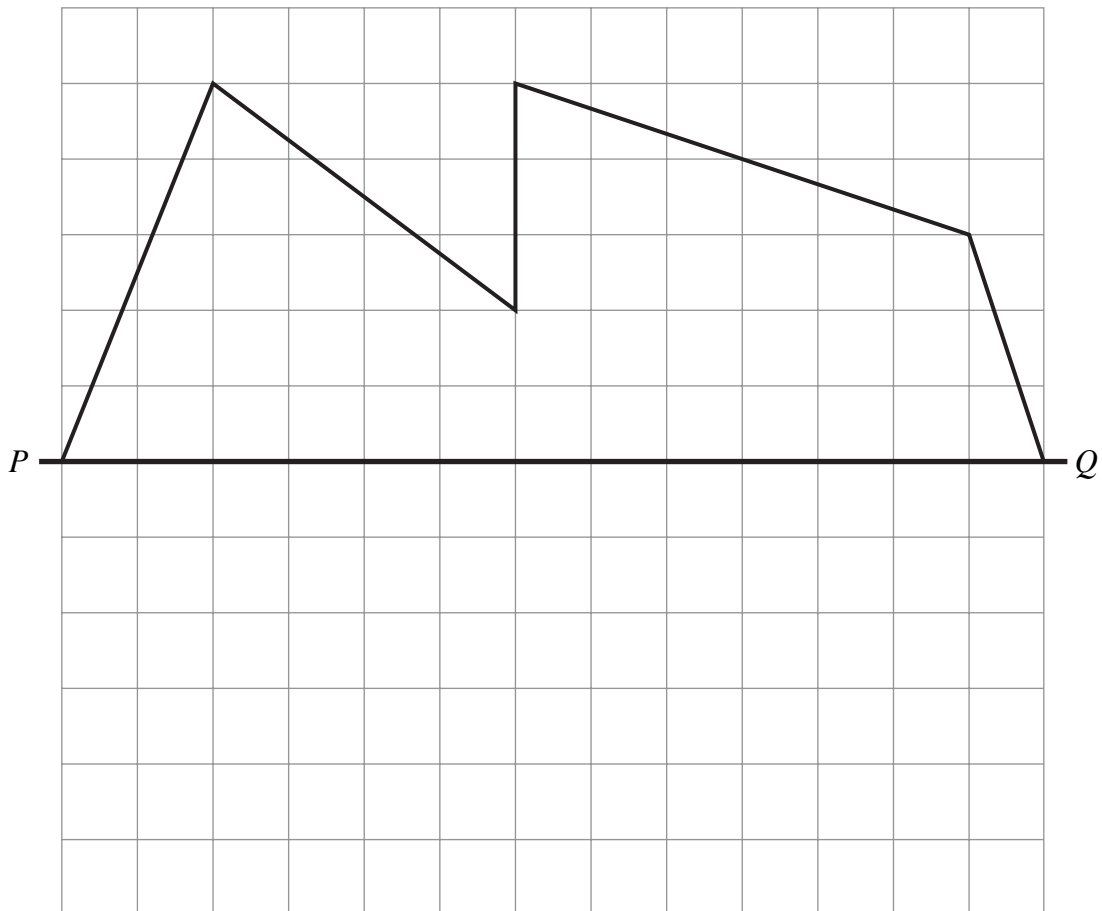
2. (a) Draw **all** the lines of symmetry of the following figure.

[2]

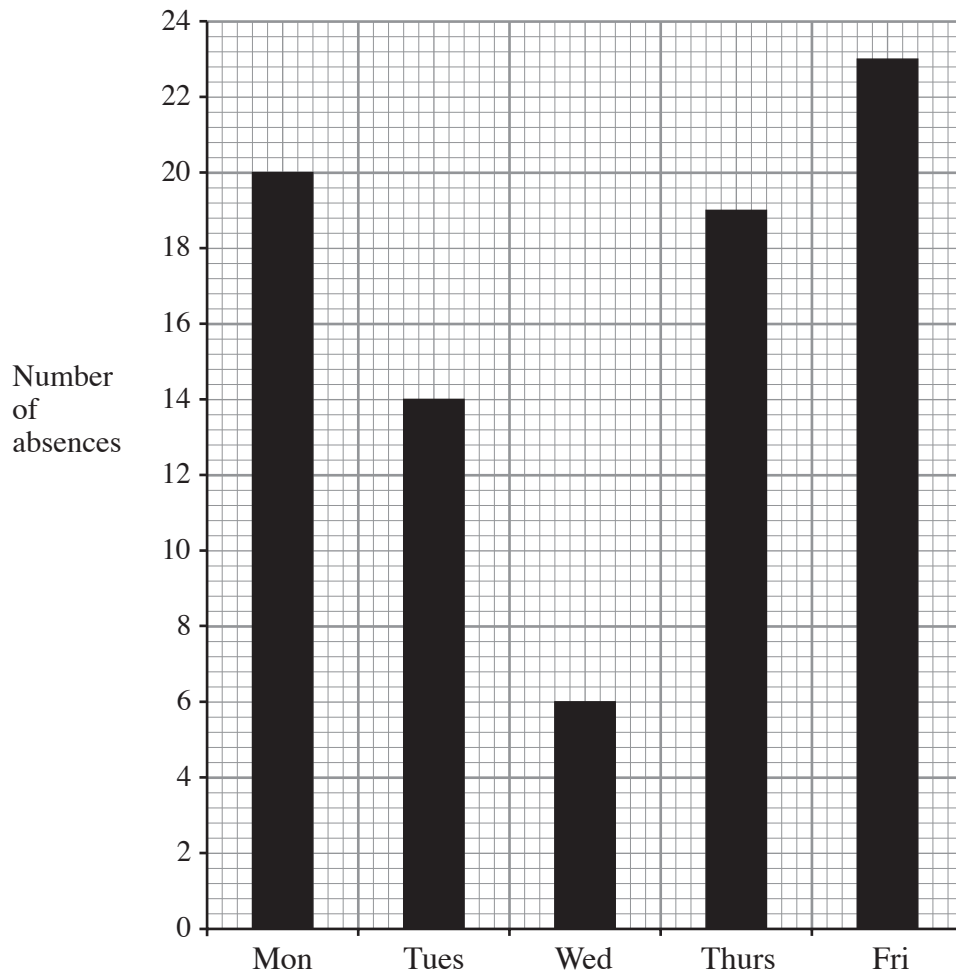


- (b) Complete the following diagram so that  $PQ$  is a line of symmetry.

[2]



3. The diagram shows the numbers of pupils absent from school during one week.



- (a) On which day was the greatest number of pupils absent?

.....  
[1]

- (b) How many absences were there on Thursday?

.....  
[1]

- (c) On which days were there less than 16 pupils absent?

.....  
[1]

- (d) Find the total number of absences for the week.

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.....  
.....  
.....  
[2]

4. (a) Write down the next term of **each** of the following sequences.

(i) 4, 9, 14, 19, .....

(ii) 23, 20, 17, 14, .....

[2]

(b) The following sequence starts with a 3.  
Equal amounts are added each time to get the next term.  
Find the missing terms.

3						19
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[2]

(c) A company uses the following formula to work out the charge, in pounds, for repairing gas boilers.

$$\text{Charge} = \text{Number of hours worked} \times 8 + 45$$

Calculate the **Charge** when the **Number of hours worked** is 4.

.....

.....

[2]

5. (a) Using the following numbers,

25    32    49    17    21    45    14

write down

- (i) the value of  $7^2$ , .....
- (ii) a prime number, .....
- (iii) a factor of 64. ....

[3]

(b) Find 20% of £60.

.....

.....

[2]

(c) (i) Write

- $\frac{3}{4}$  as a decimal, .....
- 60% as a decimal. ....

(ii) Write  $\frac{3}{4}$ , 60% and 0.7 in order of size, with the smallest first.

.....

[3]

6. While on holiday at an hotel a number of holiday makers compared the price they paid. The prices were:

£125,    £120,    £130,    £125,    £145,    £125,    £134,    £155,    £130.

For these prices, write down the mode, the median and the range.

.....

.....

The mode = .....

The median = .....

The range = .....

[4]

7. Make an accurate drawing of triangle  $ABC$  in which  $AC = 11.3$  cm,  $\widehat{CAB} = 57^\circ$  and  $\widehat{ACB} = 63^\circ$ . The line  $AC$  has been drawn for you.



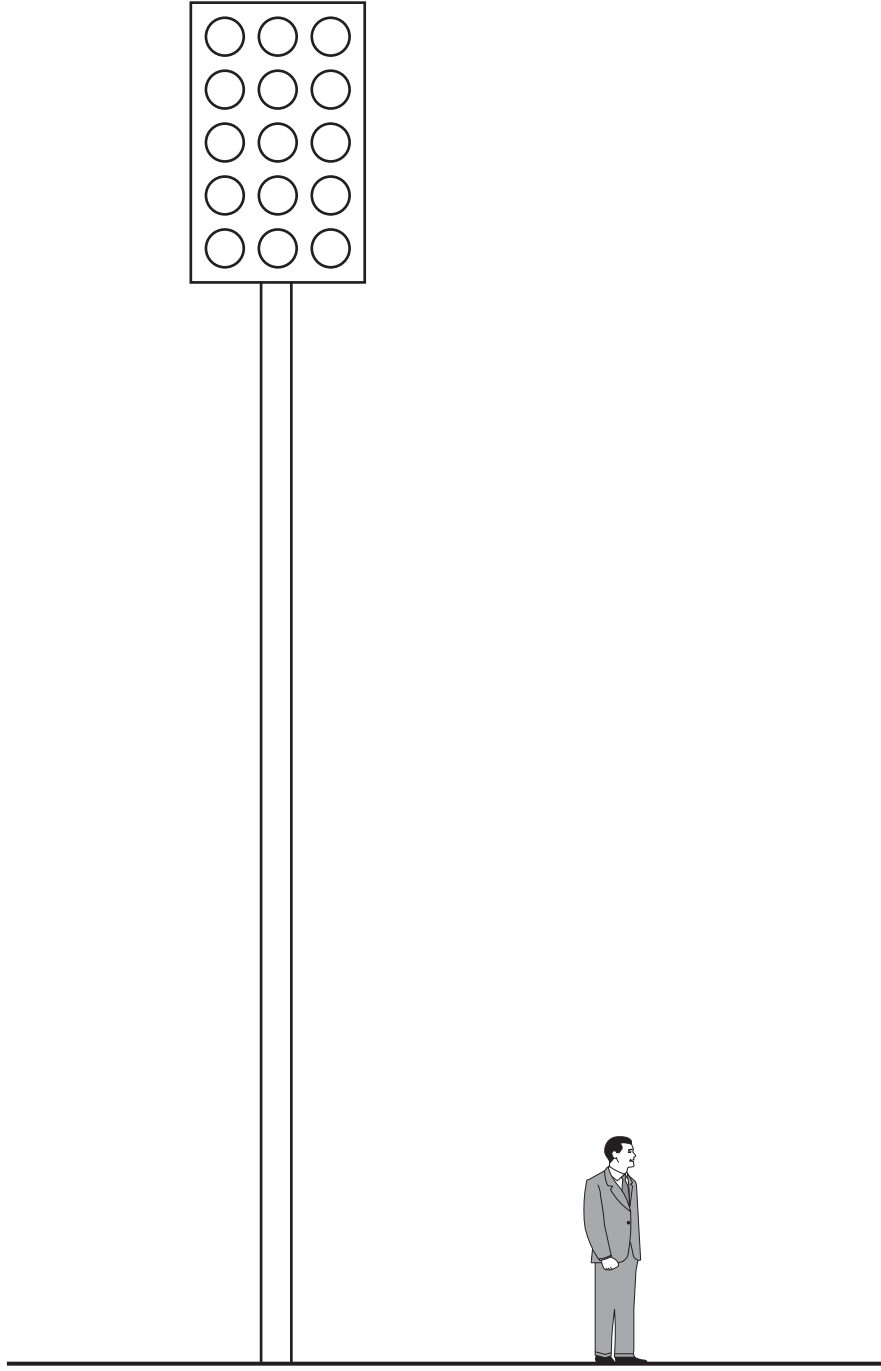
Measure and record the length of  $AB$ .

Length of  $AB = \dots\dots\dots$  cm

[3]

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8.



The diagram opposite, which is drawn to scale, shows a man standing at the side of a floodlight tower at a football ground.

Estimate the height of the man and hence find an estimate for the height of the floodlight tower.

**Show all your working.**

Estimated height of the man = .....

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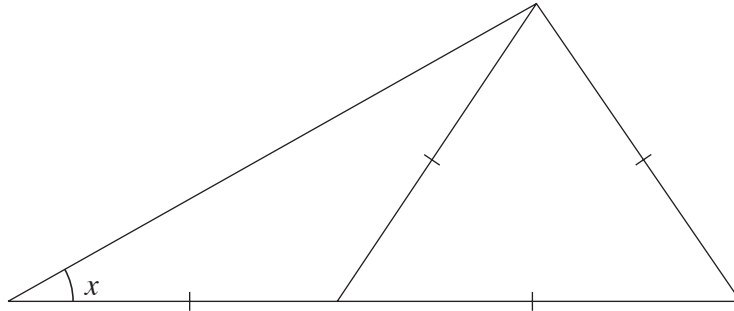
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Estimated height of the floodlight tower = .....

[4]

9. Find the size of the angle marked  $x$ .  
**Your working must be shown.**



*Diagram not drawn to scale.*

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$x = \dots\dots\dots^\circ$

[4]

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10. (a) Andrew bought four ice cream cones costing 86p each.  
He paid using a £5 note.  
How much change should he be given?

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[2]

- (b) Mary bought a tennis ball costing £2.25 and a shuttlecock costing £1.28.  
She used a £10 note to pay for these items.  
How much change should Mary be given?

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[2]

- (c) Sam bought eight trees for his garden.  
Each tree cost £17.  
Calculate the total cost of the trees.

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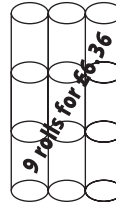
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[2]

- (d) A supermarket sells CLEANIT kitchen rolls in packs of 12 and in packs of 9.



Which pack gives you better value for money.  
**You must show all your working.**

[3]

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11. (a) Solve **each** of the following equations.

(i)  $x - 7 = 16$

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(ii)  $\frac{x}{4} = 6$

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.....

(iii)  $3x + 2 = 8$

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[4]

(b) Simplify **each** of the following expressions.

(i)  $6r + 5s - 5r$

.....

(ii)  $7d - 5c - 2d - 6c$

.....

[4]

(c) (i) Find the value of  $4s + 7t$  when  $s = -3$  and  $t = 2$ .

.....

.....

(ii) Use the formula  $W = 5x - 3y$  to find the value of  $W$  when  $x = 4$  and  $y = -4$ .

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[3]

(d) Factorise  $3x + 15$ .

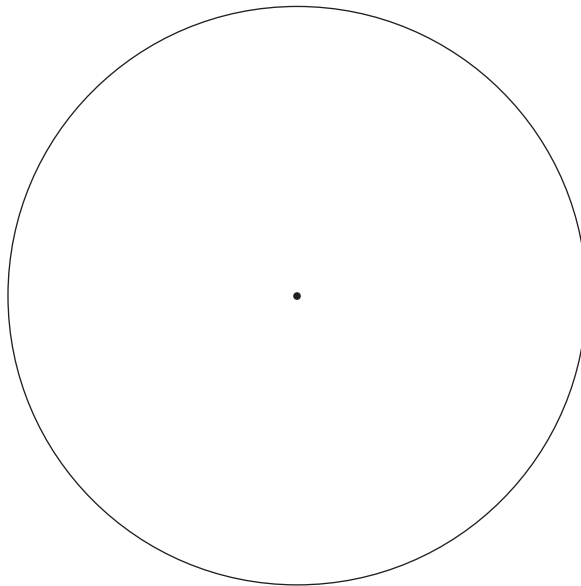
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[1]

12. The type of mobile phone owned by each of 60 pupils was recorded. The results are summarised in the table below.

Type of mobile phone	Number of pupils
A	25
B	16
C	10
Other	9

Draw a pie chart to illustrate these results.  
**Show your working.**



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[4]

**Turn over.**

13. The table below gives some of the values of  $y = x - 3$  for values of  $x$  from  $-3$  to  $2$ .

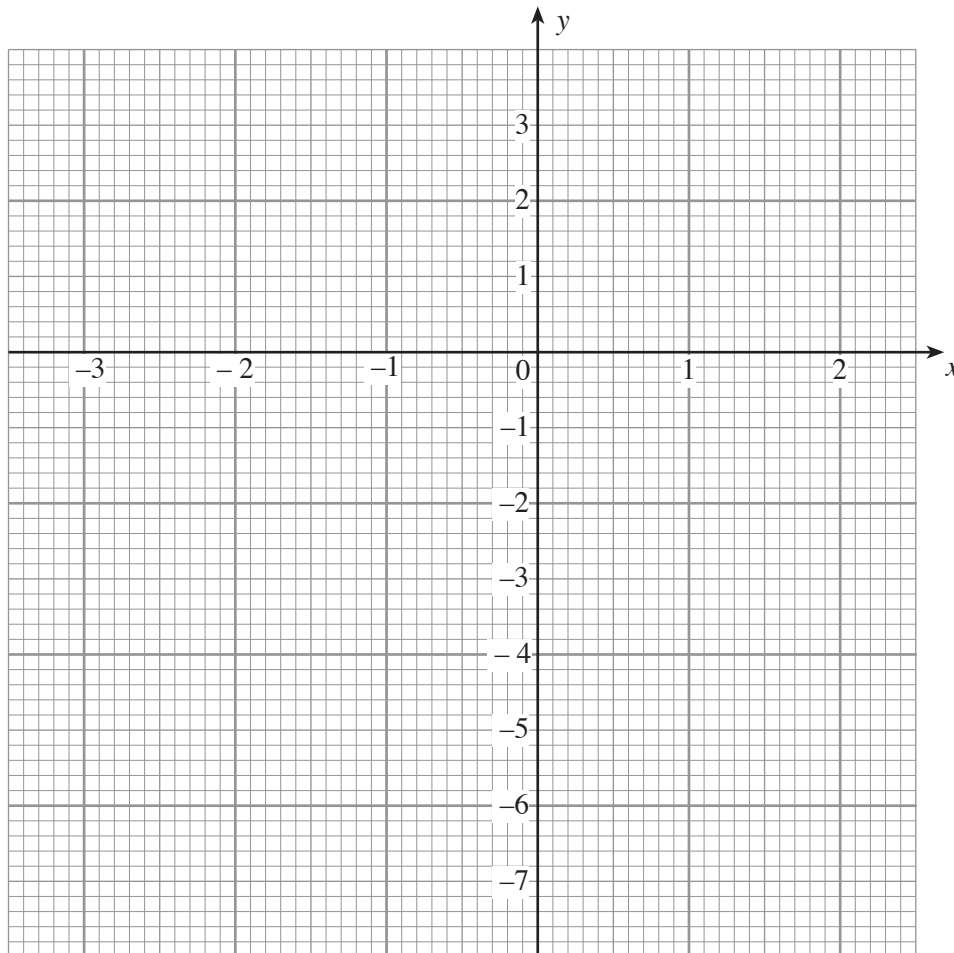
(a) Complete the table by finding the value of  $y$  when  $x = 2$ .

[1]

$x$	$-3$	$0$	$2$
$y$	$-6$	$-3$	

(b) On the graph paper below, draw the graph of the straight line  $y = x - 3$  for values of  $x$  from  $-3$  to  $2$ .

[2]



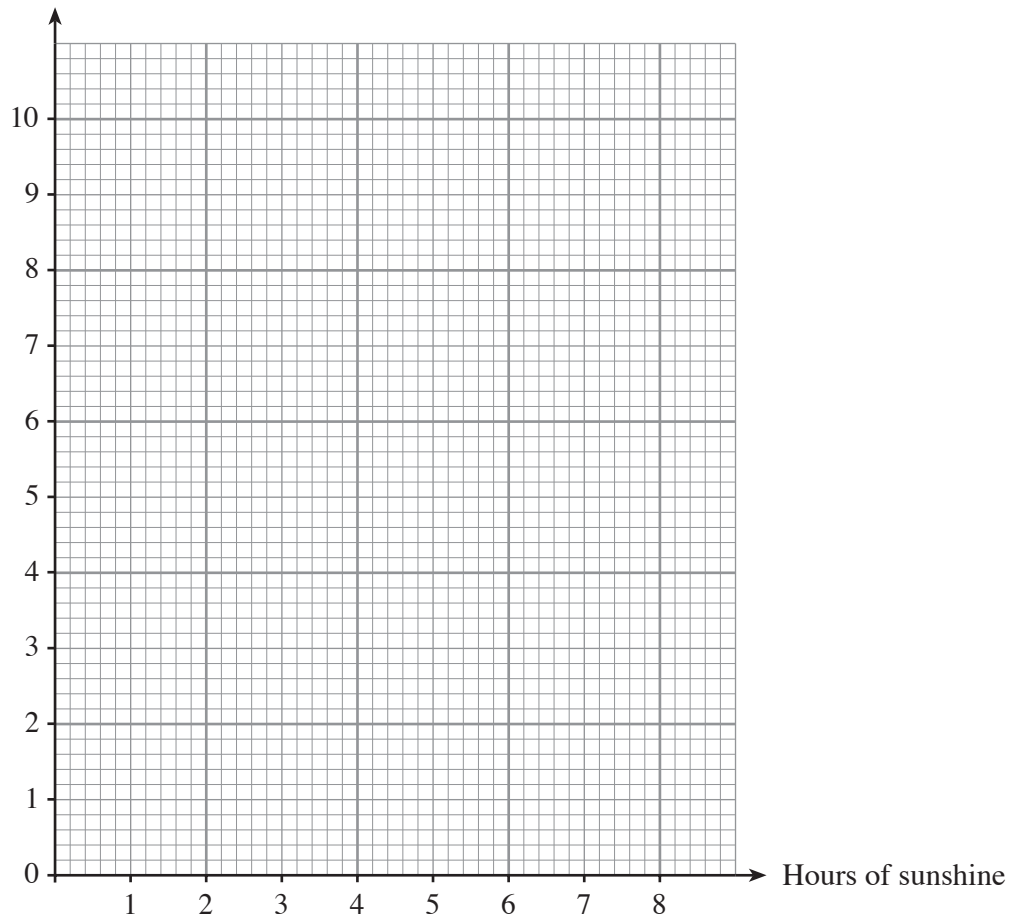
14. The number of millimetres of rainfall and number of hours of sunshine are recorded by a group of students every Monday for five weeks. The table below shows the results.

Number of hours of sunshine	5.5	6.5	6.0	7.9	4.5
Millimetres of rainfall	3.5	1.0	2.5	0.0	9.5

- (a) On the graph paper below draw a scatter diagram of these results.

[2]

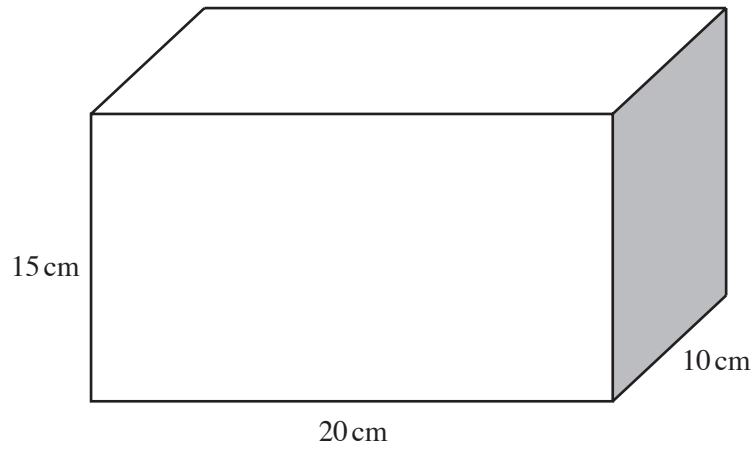
Rainfall in mm



- (b) Describe the correlation between the number of hours of sunshine and the amount of rainfall.

[1]

15. (a)



A rectangular container, full of water, measures 20 cm by 15 cm by 10 cm.  
Calculate the volume of water in the container.

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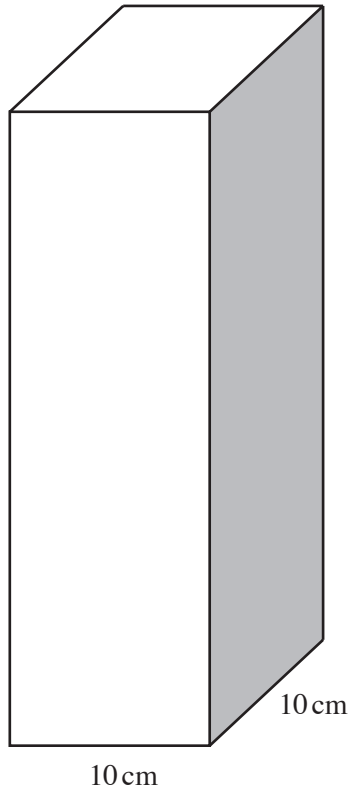
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[2]

- (b) All of the water is poured into a second container with a square base of side 10 cm.



Calculate the depth of the water in this container.

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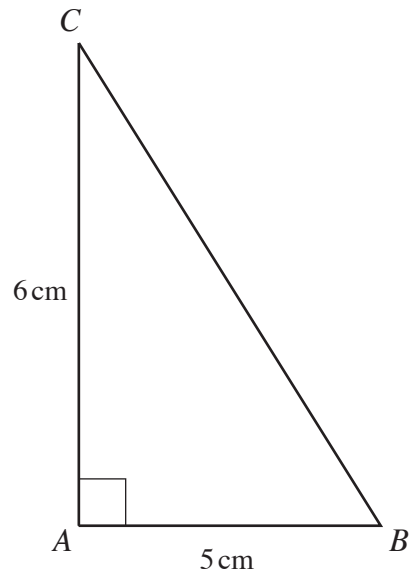
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[2]

16. The diagram shows a right-angled triangle  $ABC$  with  $AB = 5$  cm,  $AC = 6$  cm and  $\widehat{BAC} = 90^\circ$ .



*Diagram not drawn to scale.*

Find the area of the triangle  $ABC$ , clearly stating the units of your answer.

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[3]

- 17. (a) The cost of a stand season ticket last year was £200. This year it has increased by 20%. Find the cost of the stand season ticket this year.

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[3]

- (b) Two friends, Nigel and Paul, decide to share the cost of a £100 field season ticket in the ratio 4:1.

- (i) How much **each** should Nigel and Paul pay towards the cost of the ticket?

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Nigel pays ..... Paul pays .....

[2]

- (ii) In the season there are 45 matches to attend. Nigel suggests that they take it in turns to attend every other match.  
Would this be a fair suggestion?  
You must explain your answer giving an alternative suggestion if you decide that this would not be a fair method.

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[2]

18. (a) Express 360 as a product of prime numbers in index form.

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[3]

(b) Explain why  $2^5 \times 3^4$  is **not** a perfect square.

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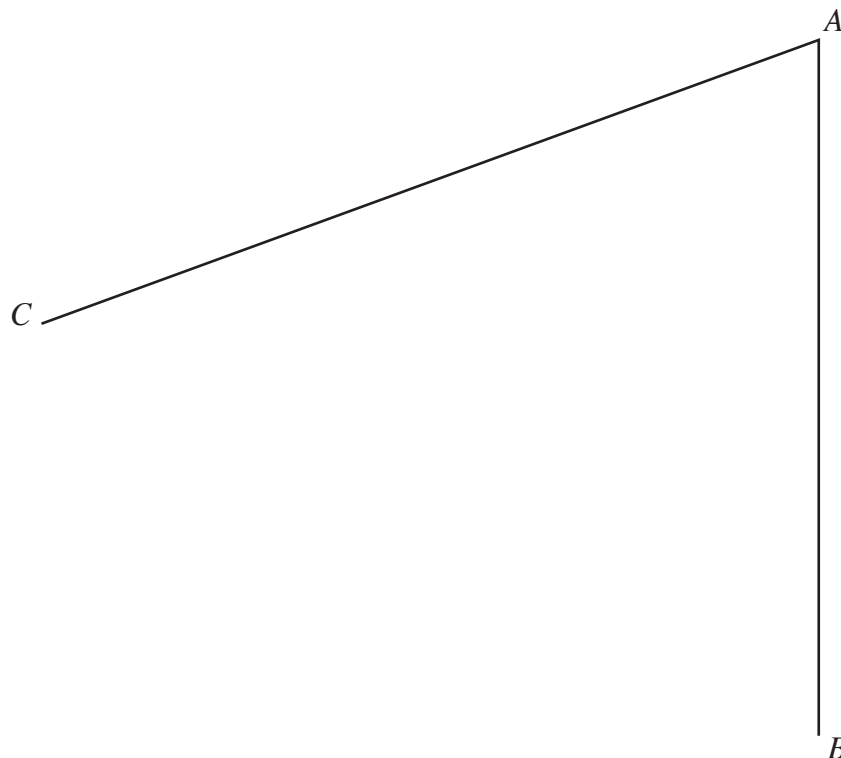
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[1]

19. (a) The diagram below shows two straight lines  $AB$  and  $AC$ .  
Find and **shade** the region which satisfies **both** of the following conditions.

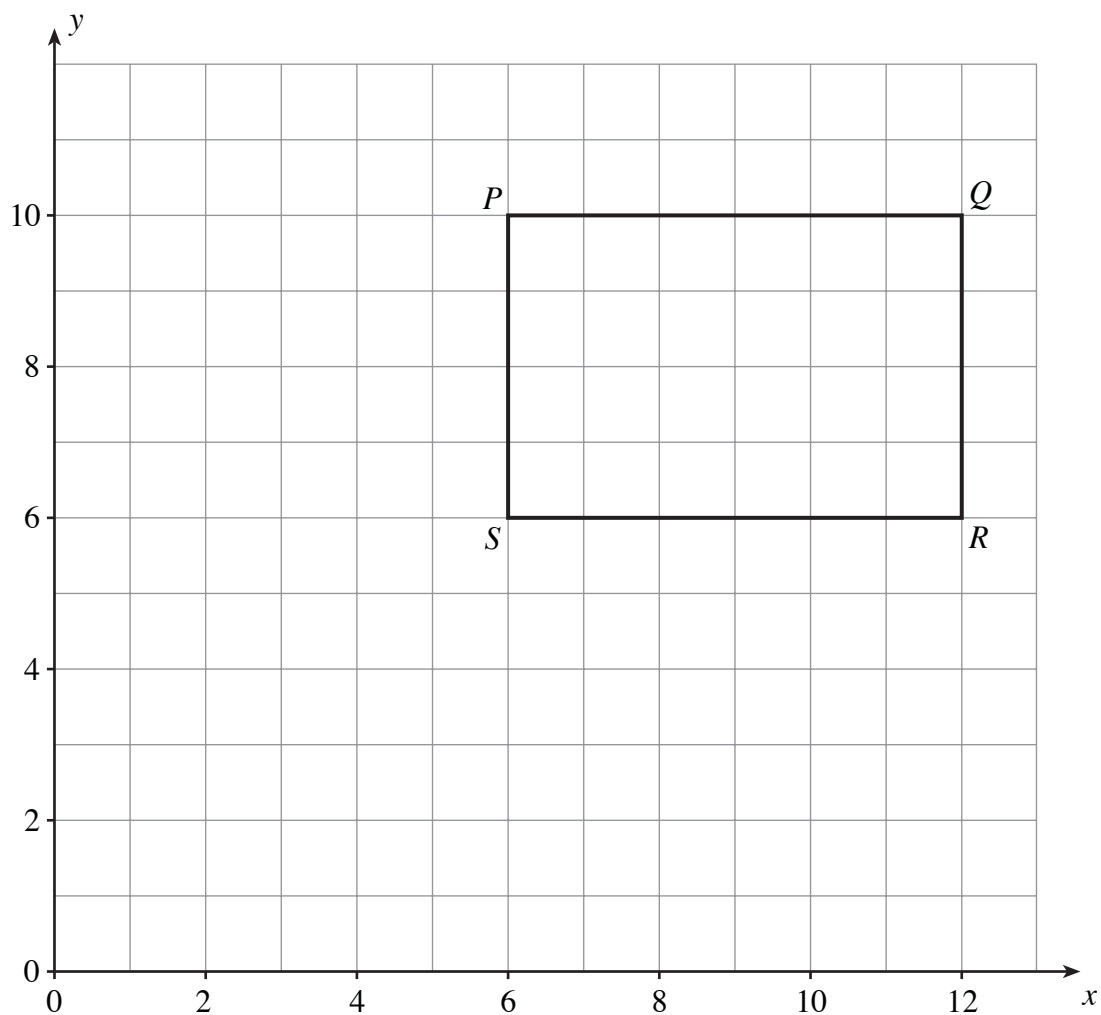
- (i) All points in the region are nearer to  $AC$  than to  $AB$ .
- (ii) All points in the region are less than 6 cm from  $B$ .



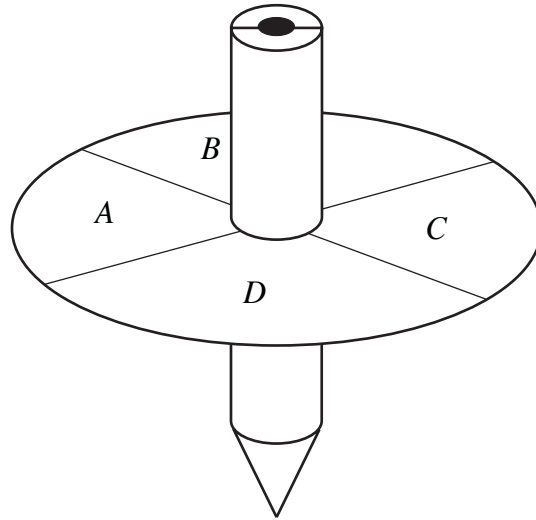
[3]

- (b) Enlarge the rectangle  $PQRS$  by a scale factor  $\frac{1}{2}$  using  $(0, 0)$  as the centre of enlargement.

[2]



20. A spinner is labelled  $A$ ,  $B$ ,  $C$  and  $D$ .



The table shows the probability of the spinner landing on the different letters.

Letter	$A$	$B$	$C$	$D$
Probability	0.18	0.36	0.12	0.34

What is the probability that the spinner lands on the letter  $C$  or the letter  $D$ ?

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[2]