

Candidate Name	Centre Number	Candidate Number
		0



GCSE

185/02

MATHEMATICS (2 Tier)

FOUNDATION TIER

PAPER 2

P.M. MONDAY, 2 June 2008

2 hours

ADDITIONAL MATERIALS

A calculator will be required for this paper.

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 π as 3.14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

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

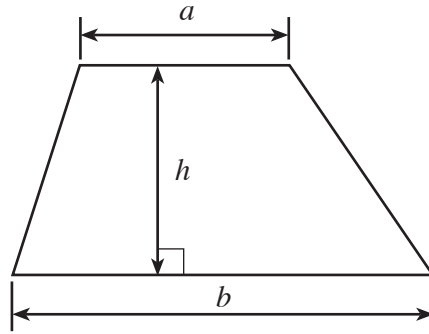
Unless stated, diagrams are not drawn to scale.

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

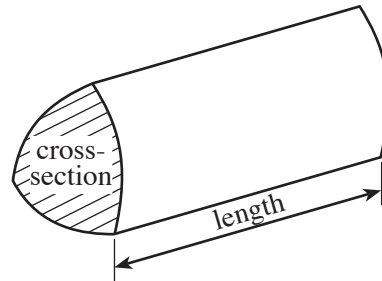
For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	6	
2	3	
3	4	
4	3	
5	7	
6	4	
7	2	
8	5	
9	3	
10	10	
11	7	
12	5	
13	8	
14	3	
15	4	
16	5	
17	5	
18	4	
19	4	
20	4	
21	4	
TOTAL 100		

Formula List

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



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



1. (a) Arthur buys the following items for his car from a garage.

Complete the bill for the items he buys.

[4]

ITEM	COST
Four new tyres at £45.53 per tyre	£
Two new windscreen wipers at £11.48 each	£
26 litres of petrol at £1.02 per litre	£
2 litres of engine oil	£ 14.70
TOTAL	£

- (b) The garage gives Arthur a 10% discount on all the above items.
Calculate the discount that Arthur receives.

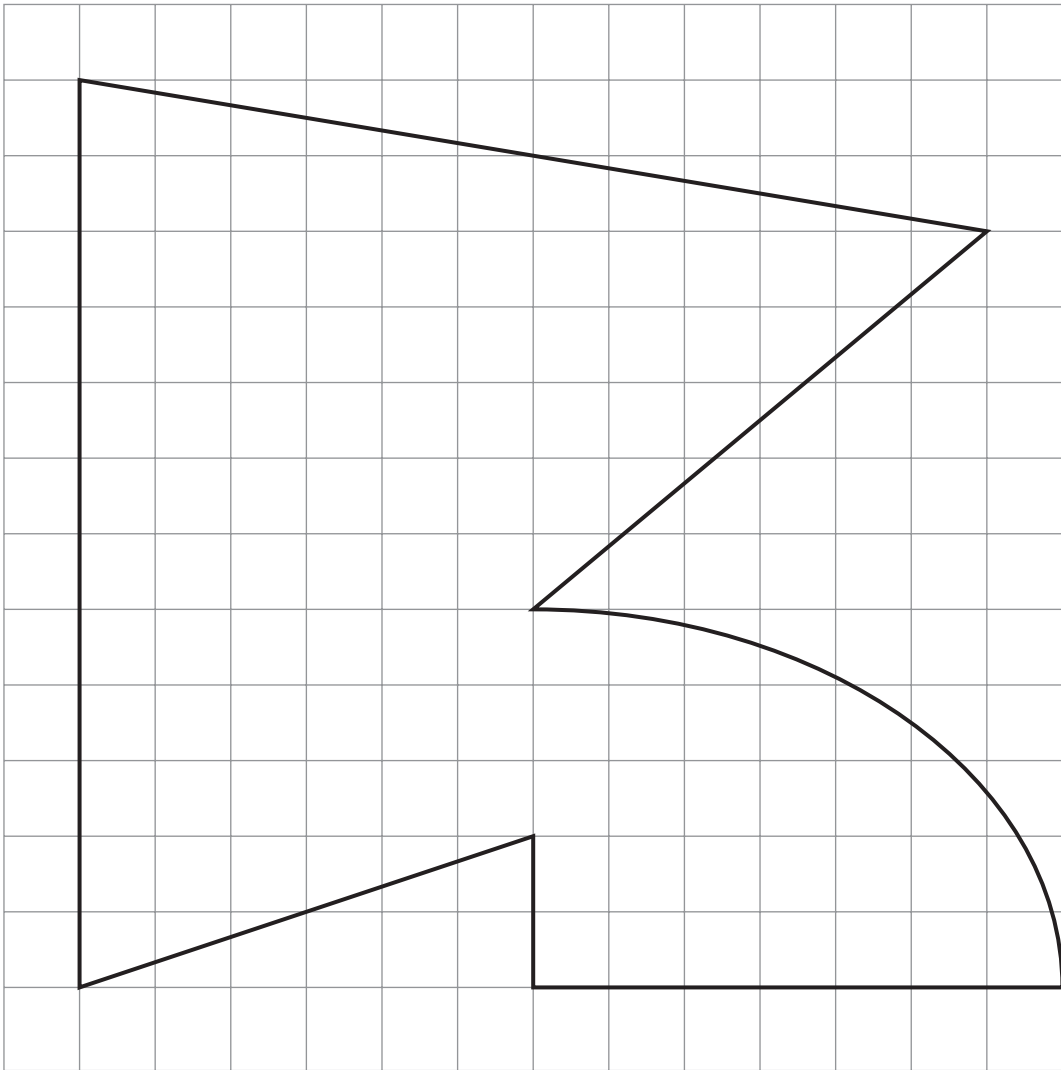
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[2]

2. (a)

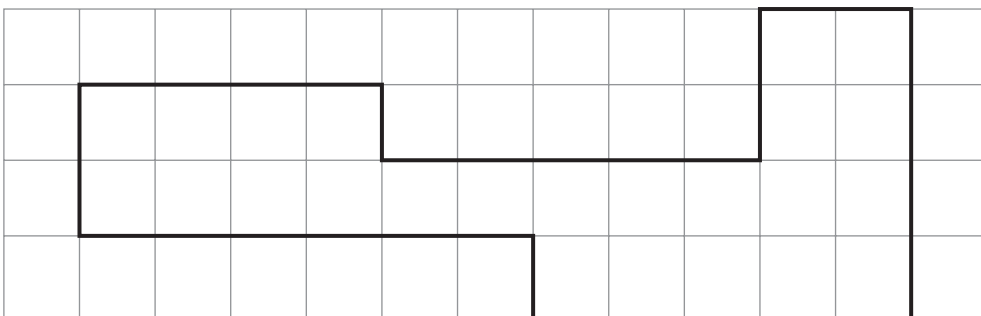


By counting squares, calculate the area of the above figure, which is drawn on a centimetre square grid.

Area = cm²

[2]

(b)



Find the perimeter of the above figure, which is drawn on a centimetre square grid.

Perimeter = cm

[1]

3. The following pictogram shows the number of television sets sold by The Discount Electrical Store each day for one week.

The symbol  represents 4 television sets.



Write down the number of television sets sold by The Discount Electrical Store

on Monday,

on Tuesday,

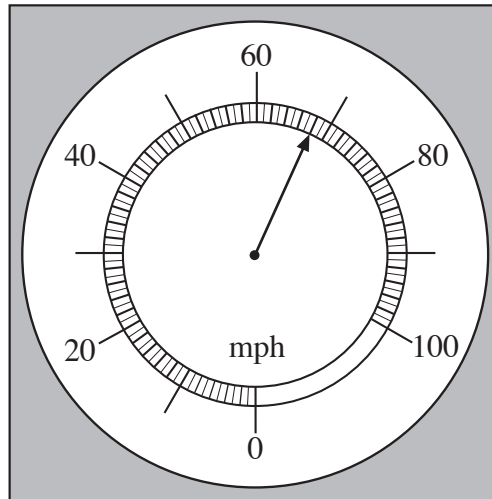
on Thursday,

on Saturday,

[4]

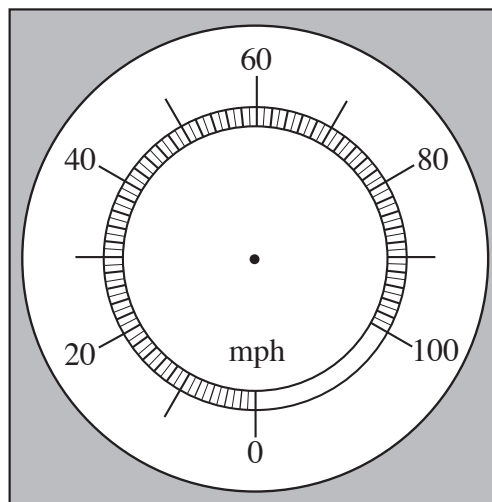
4. (a) The diagrams show a car speedometer.

(i) What speed is shown on the following diagram?



speed = m.p.h.

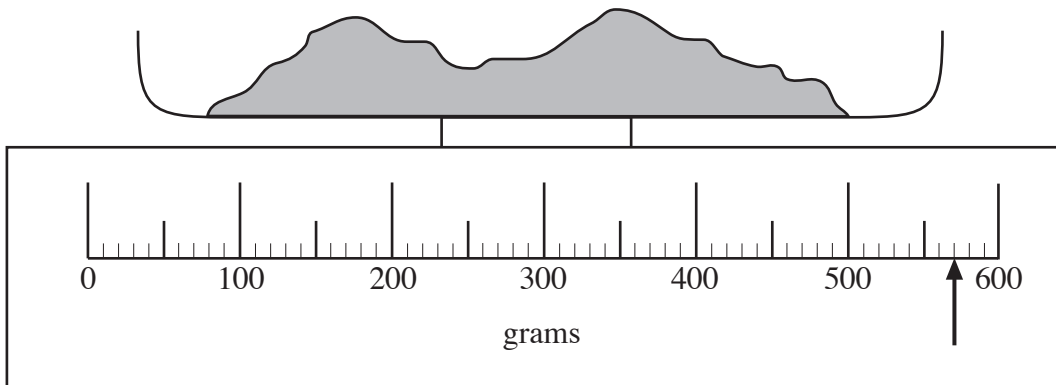
(ii) Draw a pointer on the following diagram showing a speed of 56 m.p.h.



[2]

(b) A kitchen scales is used to weigh one of the ingredients for a cake.

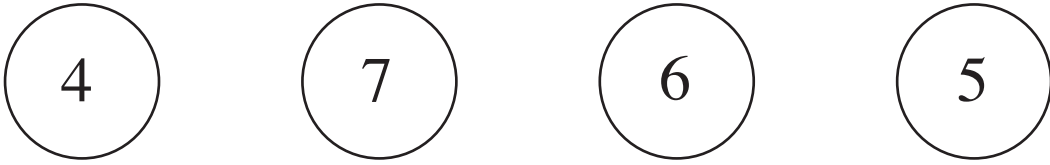
What weight is shown on the scales?



Weight = grams

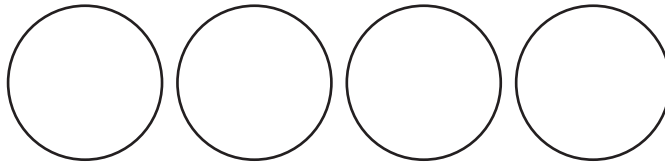
[1]

5. (a) Four numbers are printed on discs as shown below.

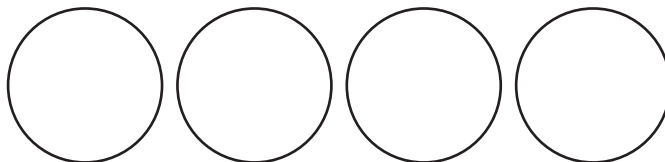


Rearrange the discs so that they show

- (i) the smallest four-digit number,

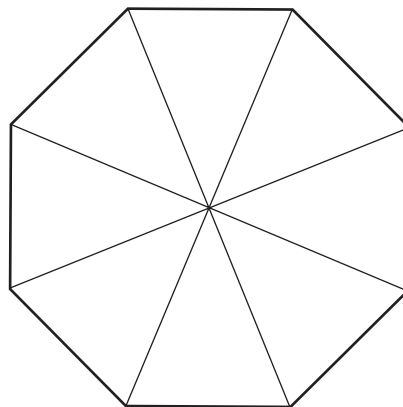


- (ii) the largest four-digit **odd number**.



[2]

- (b) Shade 25% of the following figure.



[1]

- (c) Write down all the factors of 22.

[2]

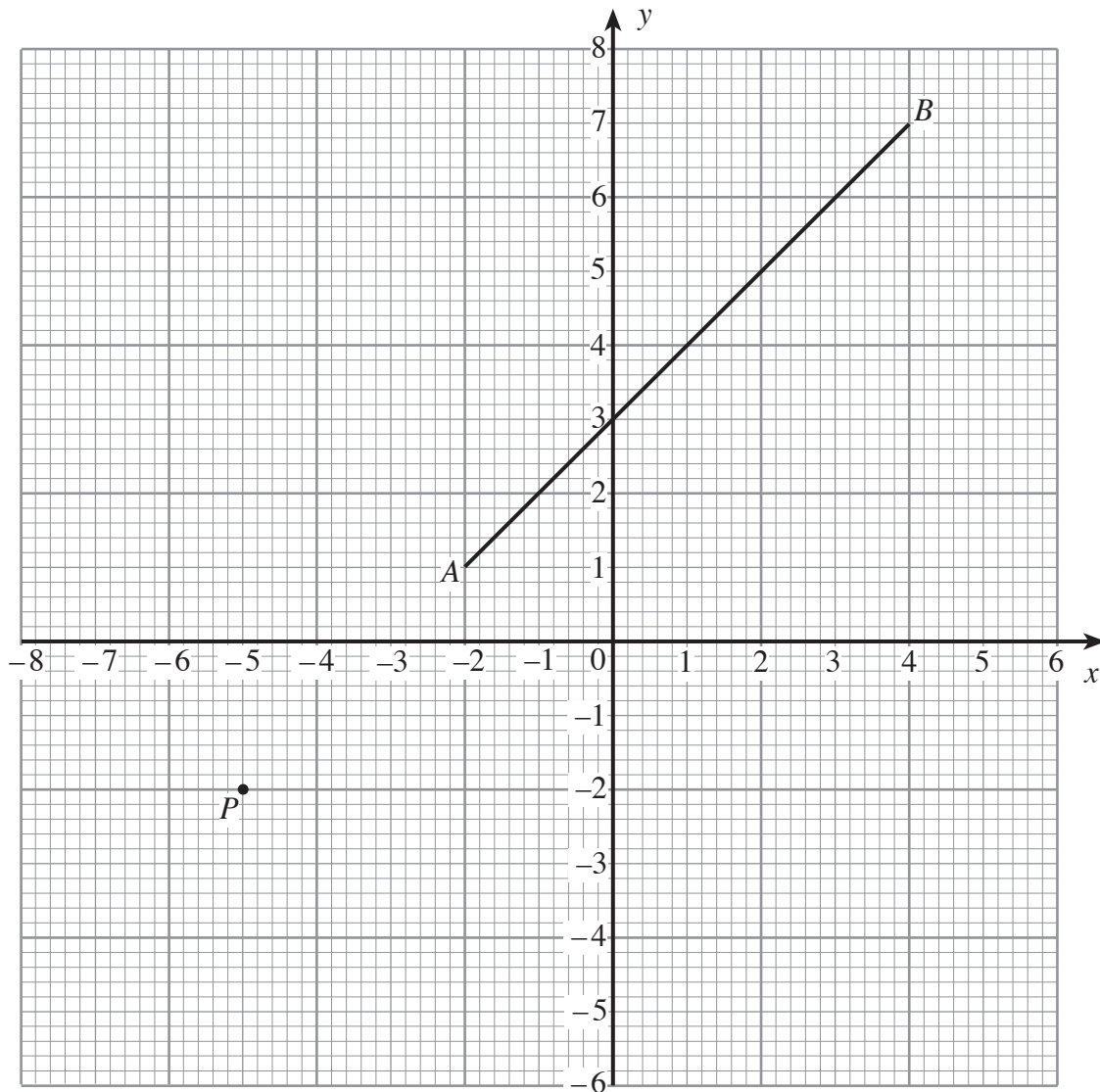
- (d) Write 7458

(i) correct to the nearest 10,

(ii) correct to the nearest 1000.

[2]

6.



Write down the coordinates of

(a) the point P , (..... ,)

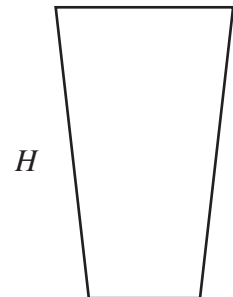
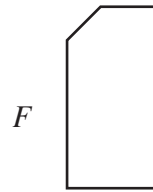
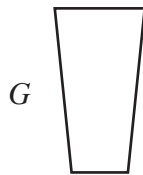
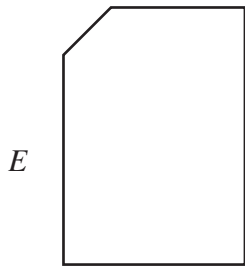
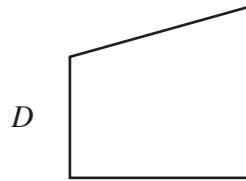
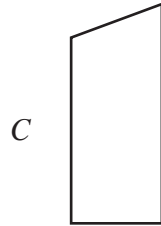
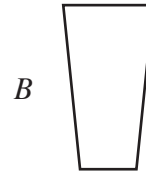
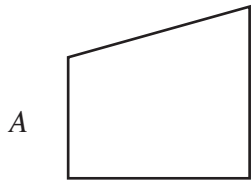
[1]

(b) the mid-point of the line AB . (..... ,)

[1]

7. (a) Use the following diagrams to write down two pairs of congruent shapes.

[2]

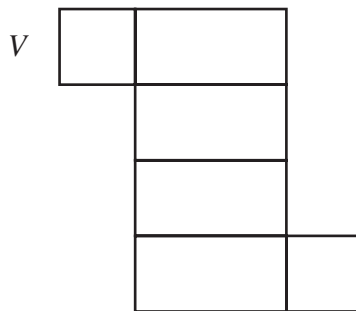
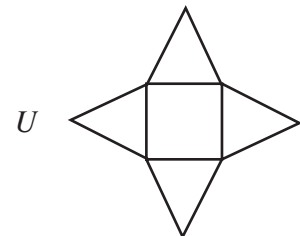
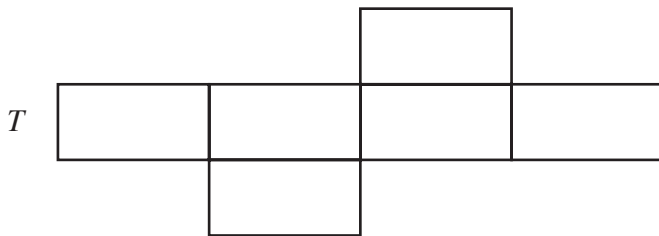
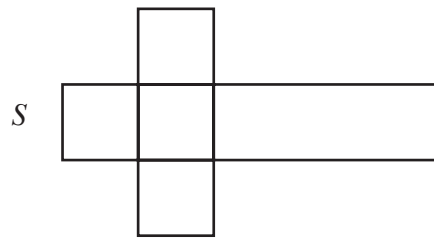
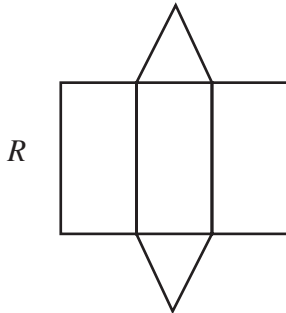
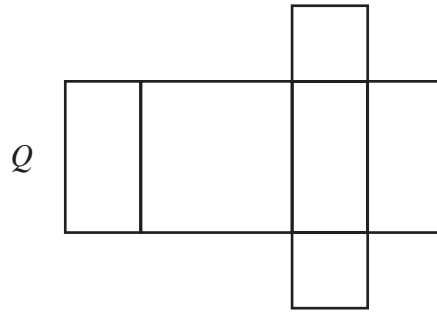
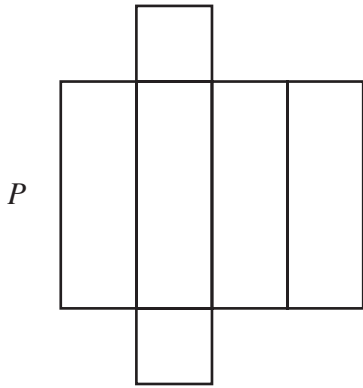


One pair of congruent shapes is and

Another pair of congruent shapes is and

(b) Which of the following are nets of a cuboid?

[2]



The nets of a cuboid are

8. (a) Make an accurate drawing of the following triangle.

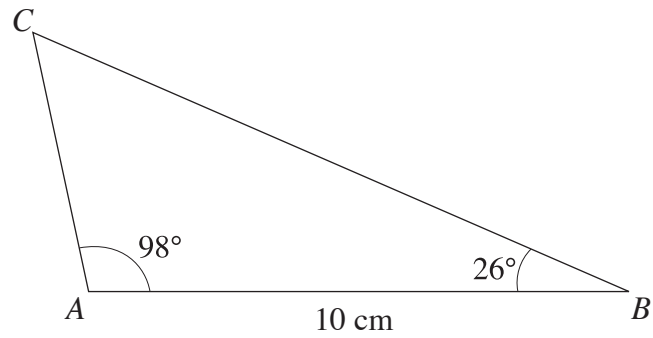
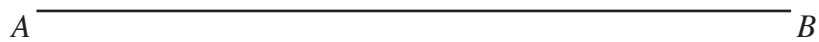


Diagram not drawn to scale.

The line AB has been drawn for you.

[2]



- (b) The following diagram shows a field ABC in which the lengths of AB , AC and BC are 90 m, 120 m and 130 m respectively.

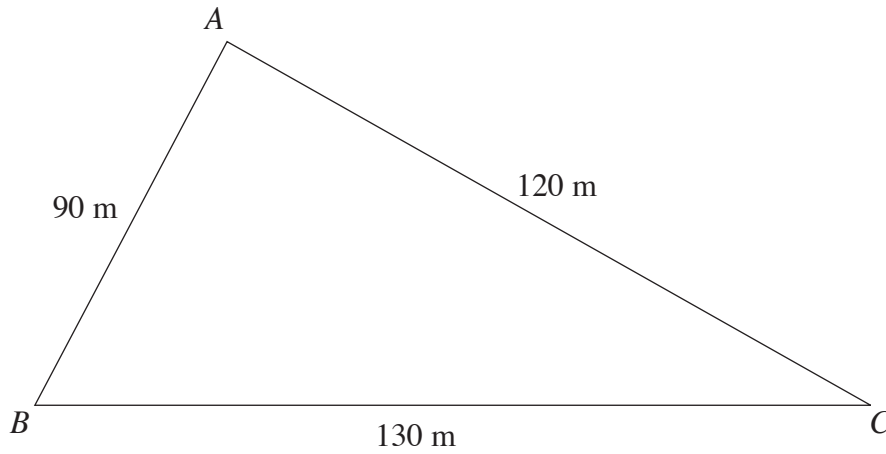


Diagram not drawn to scale.

Using a scale of 1 cm to represent 10 m make an accurate scale drawing of triangle ABC .

[3]

9. (a) In the following diagram AB is a straight line.
Find the size of the angle marked x .

[1]

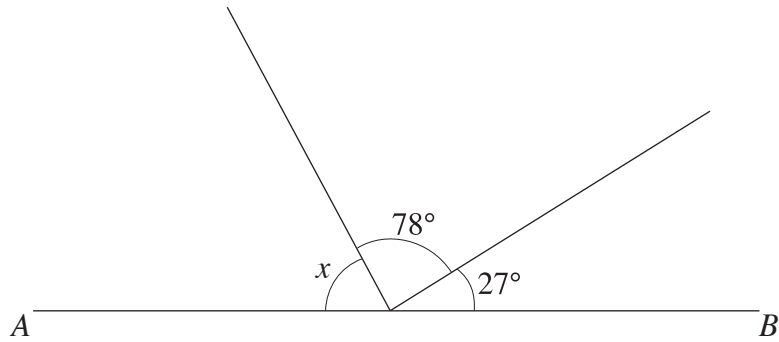


Diagram not drawn to scale.

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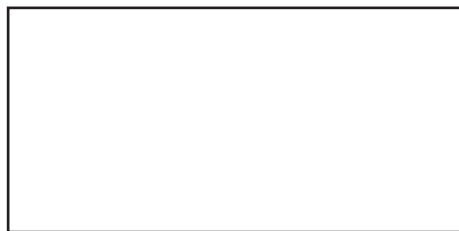
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$$x = \text{.....}^\circ$$

- (b) Mark all the lines of symmetry on the following figure.

[2]



10. (a) (i) Mary went to the supermarket to buy items for a barbecue.
 She bought six packets of sausages at £2.36 per pack, four packs of steak at £3.44 per pack and eight packets of bread rolls.
 The total cost of these items was £34.80.
 Calculate the cost of one packet of bread rolls.

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Cost of one packet of bread rolls = [5]

- (ii) Tom has £20.
 He buys cakes for the barbecue.
 Each cake costs 89p.
 Find the greatest number of cakes that Tom can buy and work out how much money Tom will have left over.

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Tom buys cakes. [3]
 Tom has left over.

- (b) What is 62% of 12.5?
-
-
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- [2]

11. (a) Find the mean of

45 57 46 38 76 63 48 86 72

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[3]

(b) There are four balls numbered 3, 5, 7 and 9 respectively in machine A and five balls numbered 2, 4, 6, 8 and 10 respectively in machine B.

In a game, machines A and B each select one ball at random. The score for the game is the sum of the two numbers on the balls.

(i) Complete the following table to show all the possible scores.

Machine B	10	13			
	8	11			
	6	9			
	4	7	9	11	13
	2	5	7	9	11
		3	5	7	9
		Machine A			

(ii) To win a game, a player must get a score which is less than 11.

If the player plays the game once, what is the probability that he/she will win?

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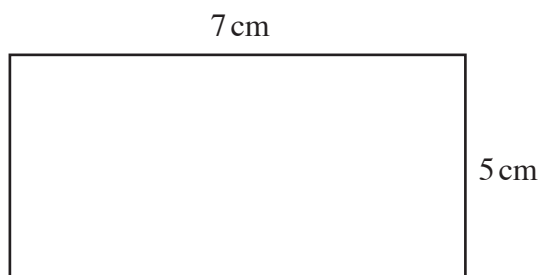
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[4]

12.



Each side of the above rectangle is enlarged by a scale factor of four.

(a) Write down the dimensions of the enlarged rectangle.

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[2]

(b) How many times bigger is the perimeter of the enlarged rectangle than the perimeter of the small rectangle?

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[1]

(c) How many times bigger is the area of the enlarged rectangle than the area of the small rectangle?

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[2]

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

(i) $4x = 12$

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(ii) $x + 7 = 15$

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[2]

(b) Expand $7(x - 3)$

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[1]

(c) Find the value of $6x + 3y$ when $x = 5$ and $y = -4$.

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[2]

(d) Simplify $7p - 3q - 3p - 5q$.

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[2]

(e) The length of a piece of wood is $2x + 1$ centimetres.
A second piece of wood is $3x$ centimetres longer than the first piece of wood.

Write down in terms of x the length of the second piece of wood.

Length = centimetres

[1]

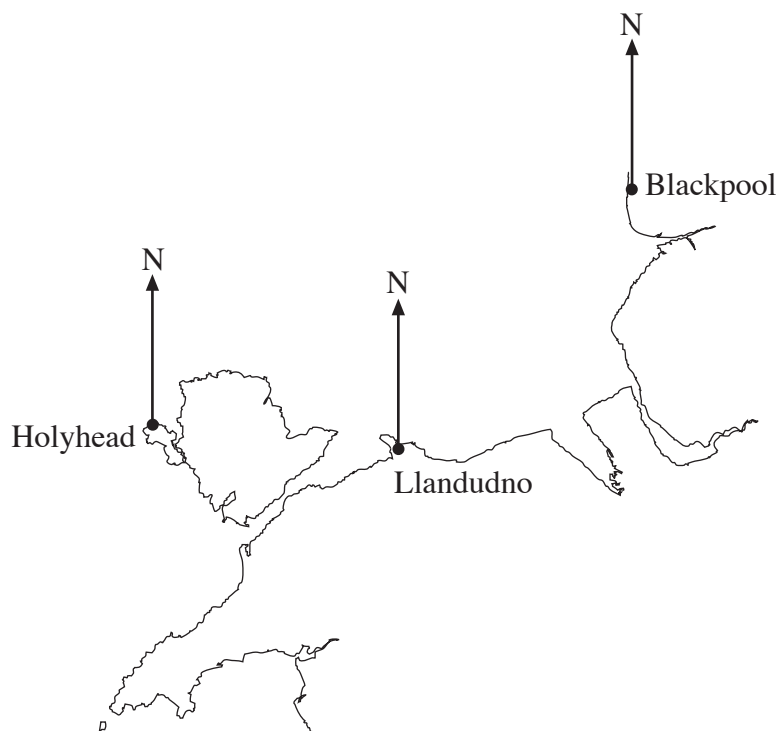
14. A cuboid is labelled **P**.
A tetrahedron is labelled **Q**.
A triangular prism is labelled **R**.
An octagon is labelled **S**.

Complete the following table.

Property of the shape	Label on shape
It has 5 faces, 3 of which are rectangular.	
It has 12 edges.	
All its faces are triangular.	
It is not a 3D shape.	

[3]

15.



- (a) Find and write down the bearing of Blackpool from Holyhead.

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[1]

- (b) A fishing boat F is anchored in the bay.
 The bearing of F from Llandudno is 345° .
 The bearing of F from Blackpool is 280° .
 By drawing suitable lines mark the position of F on the above diagram.

[3]

16. While on holiday in America, Katherine bought a camera for \$470.
Colin, while on holiday in Spain, bought the same model camera for 324 euros.

The rates of exchange at the times the cameras were purchased were $\text{£}1 = \$1.88$ and $\text{£}1 = 1.44$ euros.

Showing all your working, find out who purchased the camera for the lower price and write down the difference in the prices.

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..... paid the lower price

The difference in the prices was

[5]

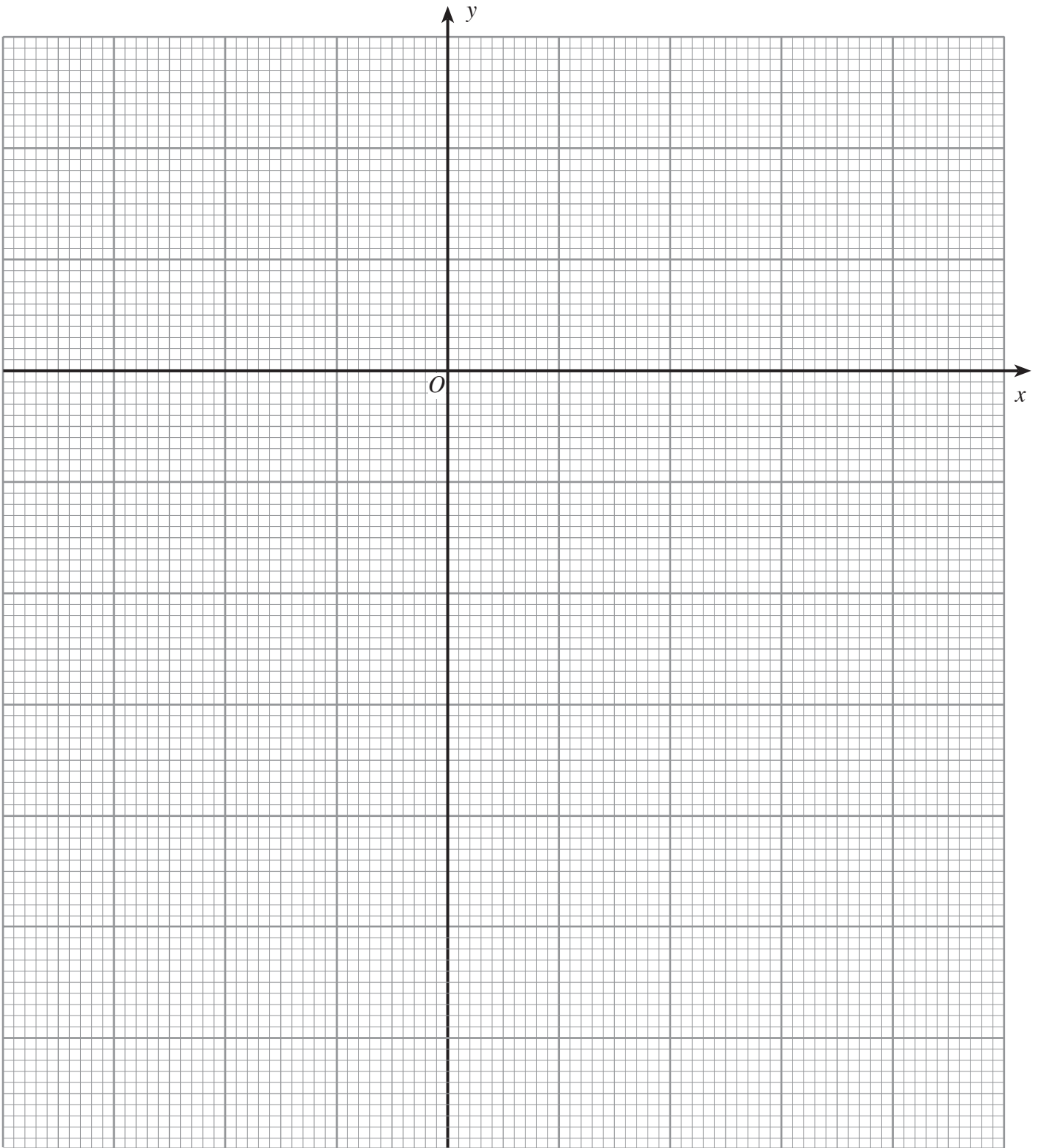
17. (a) Using the graph paper on the following page, draw the graph of the straight line $y = 2x - 3$ for values of x from -2 to $+3$.

[3]

(b) On the same graph paper draw the line $y = -2$.
Write down the coordinates of the point at which the straight line $y = 2x - 3$ cuts the line $y = -2$.

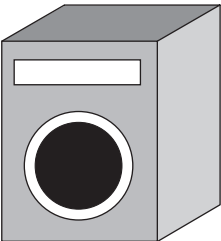
Coordinates are (.....,

[2]



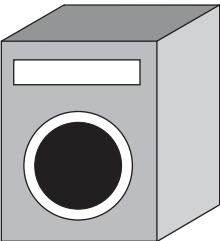
18.

Sam's Electrical Shop



Turbo washing machine
£330 + VAT at 17.5%

Discount Electrics



Turbo washing machine
£408 including VAT

Ann decides to buy a new Turbo washing machine.

She notes the prices shown above, at **Sam's Electrical Shop** and at **Discount Electrics**.

Ann buys the machine in the shop offering the lower price.

In which shop does Ann buy the washing machine and how much cheaper is it in this shop than in the other shop?

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[4]

19. The diagram shows three points A , B and C , which are on level ground.
The point B is 55m due East of A .
The point C is due North of A and 95m from B .

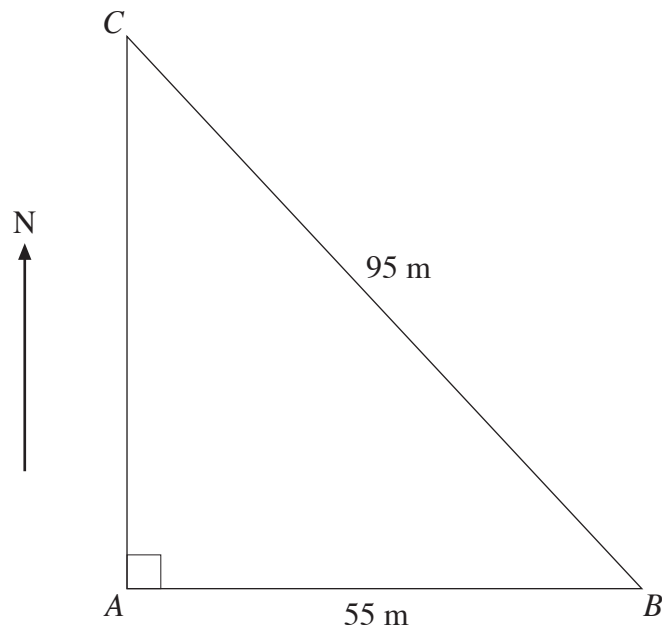


Diagram not drawn to scale.

Calculate the distance AC , giving your answer to an appropriate degree of accuracy.

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[4]

20. The heights of 107 Christmas trees were measured to the nearest centimetre. The table below shows a grouped frequency distribution of the heights.

Height (h centimetres)	Number of Christmas trees
$191 \leq h \leq 197$	24
$198 \leq h \leq 204$	35
$205 \leq h \leq 211$	28
$212 \leq h \leq 218$	20

Find an estimate for the mean height of the Christmas trees.

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[4]

21. A solution of the equation $x^3 + 2x - 5 = 0$ lies between $x = 1$ and $x = 2$. Find this solution giving your answer correct to one decimal place.

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[4]