Write your name here

Surname	Other names

Edexcel GCSE

Centre Number	Candidate Number

Applications of Mathematics

Unit 1: Applications 1

For Approved Pilot Centres ONLY

Foundation Tier

Tuesday 6 November 2012 – Morning
Time: 1 hour 45 minutes

Paper Reference
5AM1F/01

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

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.*
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed.

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.

Turn over ▶

P40680A

6/6/7/5/4/

P 4 0 6 8 0 A 0 1 2 8

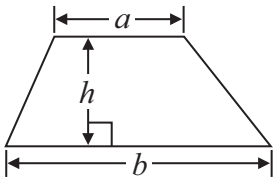
PEARSON

GCSE Mathematics 2AM01

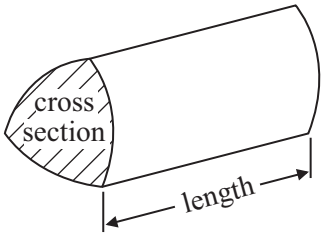
Formulae: Foundation Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

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



Volume of prism = area of cross section × length



Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 Last week 7453 people watched United play.

In a report in the local newspaper 7453 is rounded to the nearest thousand.

(a) Write 7453 to the nearest thousand.

.....

(1)

At the football match 3459 programmes were sold.

The programme sellers rounded this to the nearest hundred in their report to United's manager.

(b) Round 3459 to the nearest hundred.

.....

(1)

At the football match United had possession of the ball for 0.65 of the game.

(c) Change 0.65 into a percentage.

..... %

(1)

(Total for Question 1 is 3 marks)

2 Ellen buys items from car boot sales.
She then sells these items on an internet auction site.

The table shows some information about the items Ellen bought and sold one week.

Item	Bought	Sold	Profit or loss
DVD	£5	£7.50	£2.50 profit
Doll	£8	£12	£ .....
Jigsaw	£2	£	£1.50 profit
Chair	£	£20	£5 loss
Train set	£	£35	£20 profit

(a) Complete the table.

(4)

(b) Work out Ellen's total profit.

£ .....

(3)

(Total for Question 2 is 7 marks)

3 Here is a list of all the pets a vet saw one morning.

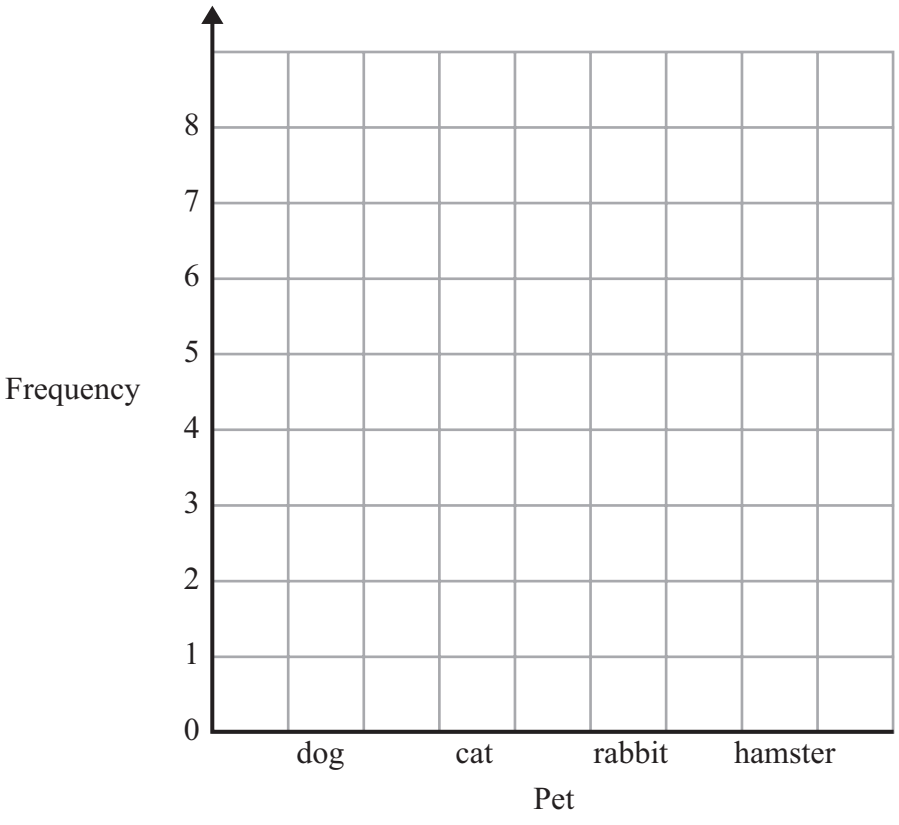
dog	cat	rabbit	hamster	dog
cat	dog	cat	dog	cat
hamster	dog	cat	rabbit	dog
dog	cat	hamster	cat	dog

(a) Complete the frequency table.

Pet	Tally	Frequency
dog		
cat		
rabbit		
hamster		

(2)

(b) On the grid, draw a bar chart to show this information.



(2)

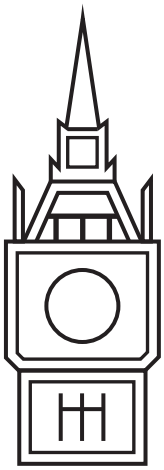
(c) What is the mode?

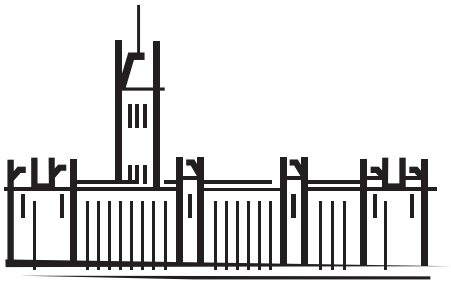
.....

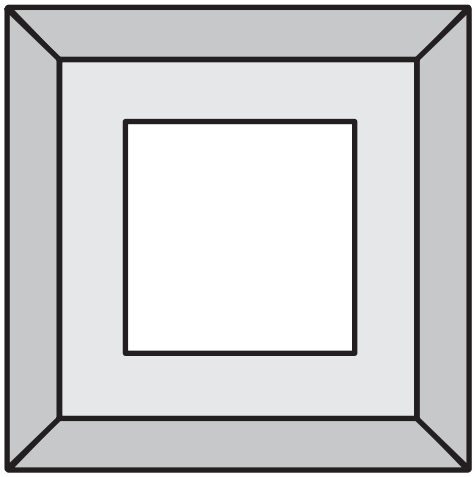
(1)

(Total for Question 3 is 5 marks)

4 Here are some drawings.







Mark in any lines of symmetry on these drawings.

(Total for Question 4 is 3 marks)

5 A door has a width of 90 cm.

(a) Change 90 cm to an equivalent imperial length.

.....

(2)

A jug holds 3.5 pints of water.

(b) Change 3.5 pints to an equivalent metric measure.

.....

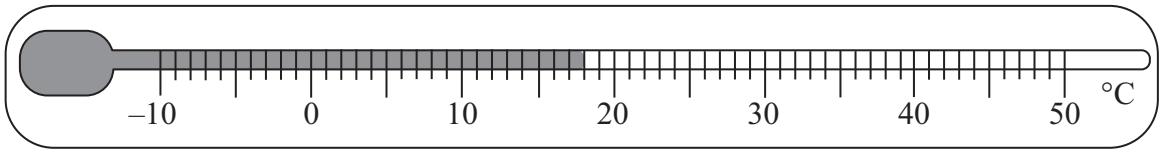
(2)

(Total for Question 5 is 4 marks)

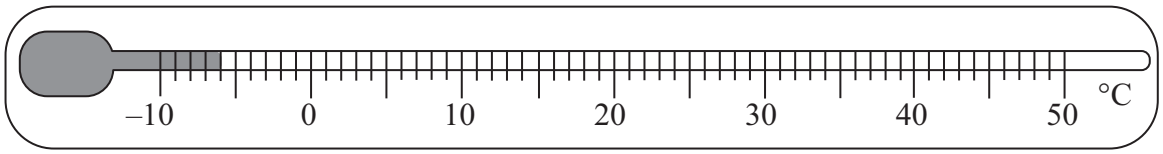
6 Simone has a thermometer in her greenhouse.

Here are the highest and lowest temperatures that she recorded one day last year.

Highest temperature



Lowest temperature



(a) Write down the highest temperature Simone recorded.

..... °C

(1)

(b) Write down the lowest temperature Simone recorded.

..... °C

(1)

(c) Work out the difference between the highest and the lowest temperatures.

..... °C

(1)

At 8 am the temperature in the greenhouse was halfway between the highest temperature and the lowest temperature.

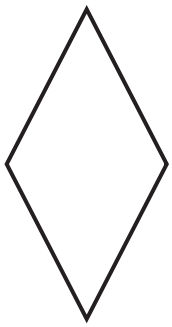
(d) What was the temperature at 8 am?

..... °C

(2)

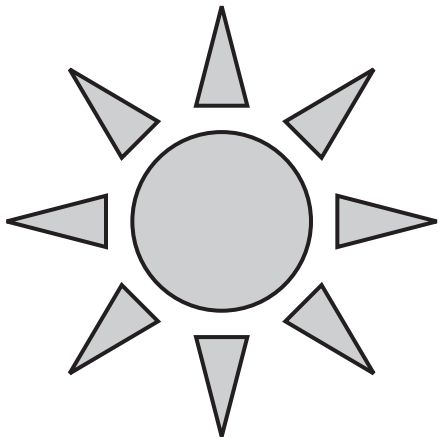
(Total for Question 6 is 5 marks)

7 Here are some shapes that are used in wallpaper design.



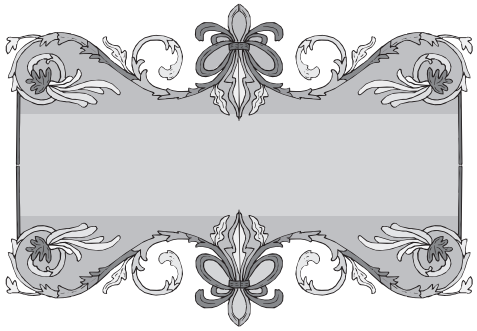
A

B



C

D



E

Some of these shapes have rotational symmetry.

(a) Write down the letters of the shapes that have rotational symmetry.

.....

(2)

(b) In the table write down the order of rotational symmetry for the shapes you have chosen in part (a).

Shape	A	B	C	D	E
Order of rotational symmetry					

(2)

(Total for Question 7 is 4 marks)

8 Michael works at a garden centre.

Michael uses this table to help people choose plants.

The ticks (✓) in the table show when there will be flowers on the plants.

Plant	Month									
	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**
Quince			✓	✓	✓					
Daphne		✓	✓							
Forsythia			✓	✓						
Jasmine	✓	✓	✓							
Lilac				✓	✓	✓				
Potentilla						✓	✓	✓	✓	✓

(a) In which months do Forsythia have flowers?

.....

(1)

(b) Which plants have flowers on them in June?

.....

(1)

(c) In which month do most plants have flowers?

.....

(1)

Michael wants a plant that only has flowers in February and March.

(d) Which plant should he choose?

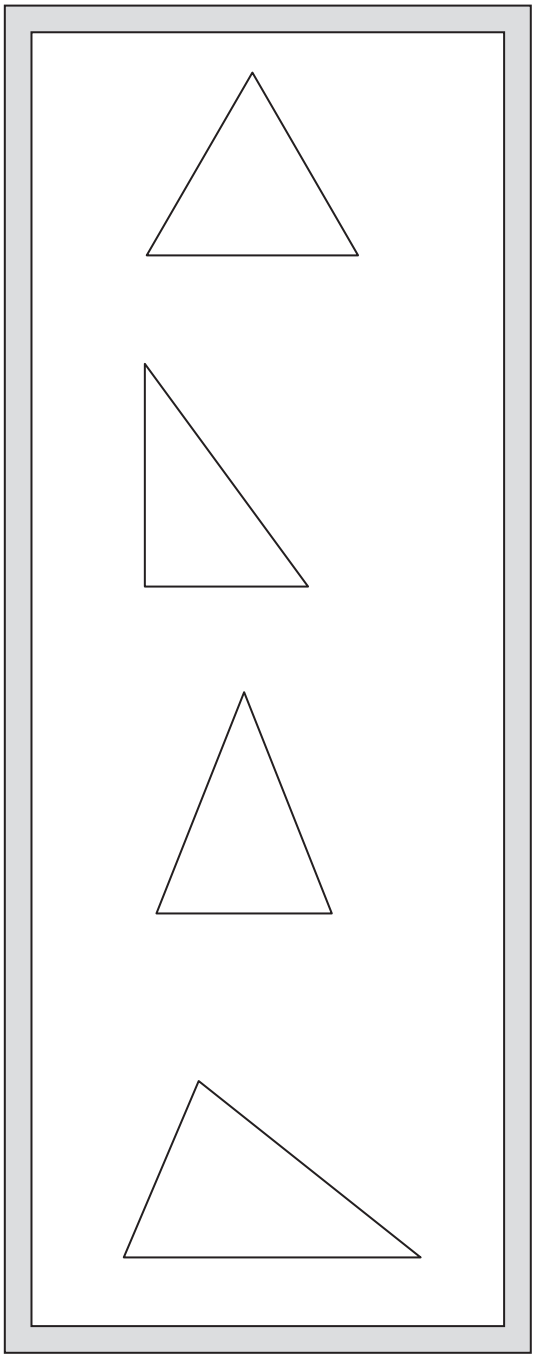
.....

(1)

(Total for Question 8 is 4 marks)

9 Here is a child's posting toy.
Triangles have to be fitted into the spaces in the toy.

Draw an arrow from each triangle to its name.



Right-angled triangle

Isosceles triangle

Scalene triangle

Equilateral triangle

(Total for Question 9 is 3 marks)

*10 The table shows the numbers of hours that Dave and Joan each watched TV every day last week.

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Dave	3	4	1	3	5	8	7
Joan	2	3	4	2	3	4	8

Show this information in a suitable chart or diagram.

(Total for Question 10 is 4 marks)

11 Julie goes to Jim's Cafe.

Jim's Cafe

Drinks		Food	
Cola	95p	Single burger	£0.75
Lemonade	85p	Double burger	£1.35
Milk	75p	Chicken pieces (3)	£0.80
Tea	85p	Chicken pieces (6)	£1.40
Coffee	90p	Fries (small)	£0.60
		Fries (large)	£1.05

Meal Deals

(all burgers and chicken meals served with any drink and small fries)

Single burger meal	£1.90
Double burger meal	£2.60
Chicken pieces (3) meal	£1.95
Chicken pieces (6) meal	£2.65

Upgrade to large fries only **20p extra**

She buys a single burger and a tea.

Julie pays with a £5 note.

(a) How much change should she get?

£ .....

(3)

Romeo goes to Jim's Cafe.
He wants a drink, fries and either a burger or chicken pieces.

Romeo only has £2.15

*(b) Show all the possible combinations of food and drink he could buy.
You must show all your working.

(5)

(Total for Question 11 is 8 marks)

12 The diagram shows part of a frame for a roof.
PQ is a straight line.

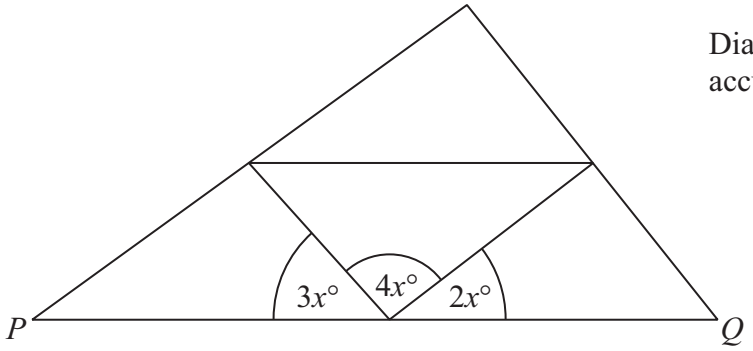


Diagram **NOT** accurately drawn

(a) Find the value of x.

.....

(3)

The diagram shows the end view of the roof of a shed.

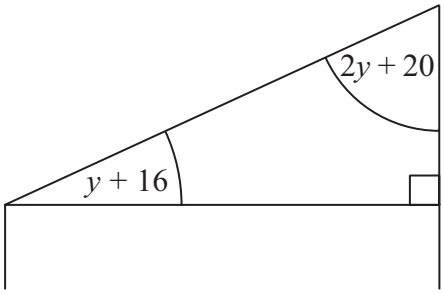


Diagram **NOT** accurately drawn

(b) Find the size of the smallest angle.

..... °

(3)

(Total for Question 12 is 6 marks)

13 Terry and June go on holiday to Norway.

Terry changes £375 into Kroner (Kr).

The exchange rate is £1 = 9.02 Kr.

(a) Work out how many Kroner (Kr) Terry gets for £375

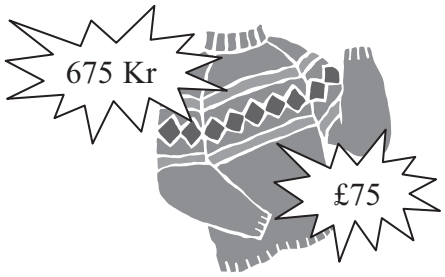
..... Kr

(2)

In Norway June sees a jumper costing 675 Kr.

In London the same type of jumper costs £75

The exchange rate is £1 = 9.02 Kr.



(b) Work out the difference between the cost of the jumper in Norway and the cost of the jumper in London.

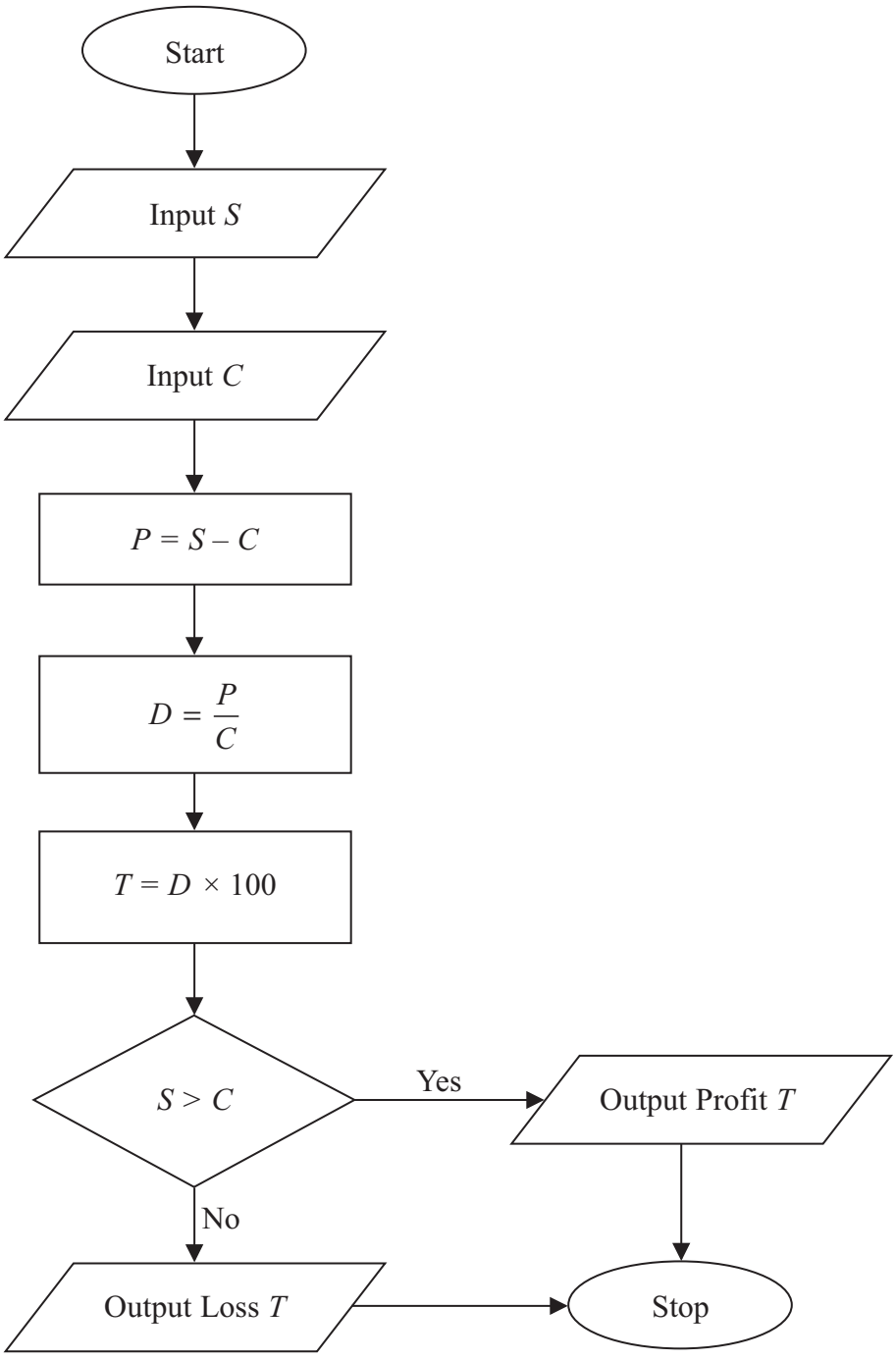
.....

(3)

(Total for Question 13 is 5 marks)

14 Katie owns a clothes shop.

She uses this flowchart to work out the percentage profit or percentage loss when she sells clothes.



Use the flowchart to work out the values of P, D and T when

$S = 65$ and $C = 50$

$P =$ .....

$D =$ .....

$T =$ .....

(Total for Question 14 is 3 marks)

15 Here is a picture in the shape of a rectangle.

Diagram **NOT** accurately drawn

The length of the picture is 5 cm more than the width of the picture.
The perimeter of the picture is 58 cm.

Jophal wants to buy glass to cover the whole of the picture.

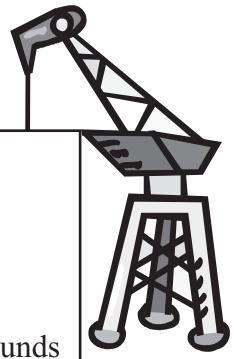
What is the area of the glass that Jophal needs to buy?

..... cm^2

(Total for Question 15 is 4 marks)

***16** Jed has an old crane in his factory.

The crane has a Safe lifting limit of $7\frac{1}{2}$ hundredweight.



This crane has a
Safe lifting limit of

$7\frac{1}{2}$ hundredweight

1 hundredweight = 112 pounds

Jed wants to buy a new crane.

He knows two companies that sell cranes.

Euro-Crane Company

This crane has a
Safe lifting limit of

400 Kg

Ameri-Crane Company

This crane has a
Safe lifting limit of

830 pounds

Jed is going to choose the crane that has at least the Safe lifting limit as the old crane.

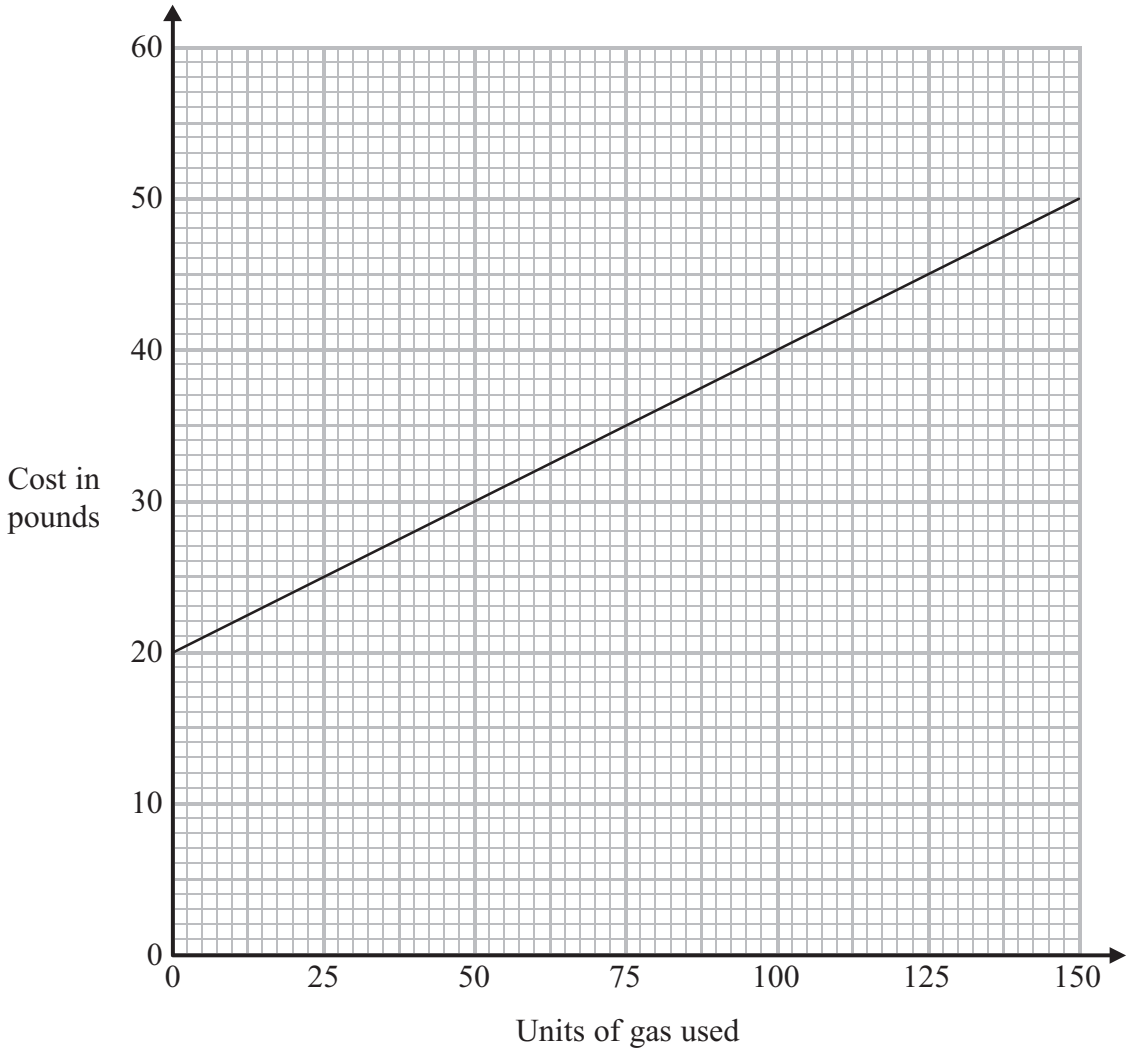
Jed knows that 1 hundredweight = 112 pounds.

Which crane Company should Jed buy the crane from?

(Total for Question 16 is 4 marks)

17 Simon has gas central heating.
He buys his gas from the Seagas company.

Simon draws this graph to show how much the company charges him for gas each month.



(a) Find the cost of using 75 units of gas.

£ .....

(1)

(b) (i) Find the gradient of the straight line graph.

.....

(ii) What is the cost of each unit of gas?

.....

(3)

Simon wants to compare the cost of two other gas companies with what he pays to Seagas.
Here are their monthly charges.

Sandygas 50p per unit of gas used.

Gas&Air £30 monthly fee.
The first 25 units are free and each extra unit of gas costs 10p.

Simon uses between 75 and 100 units of gas each month.

*(c) Which company gives Simon the best deal, Seagas, Sandygas or Gas&Air?
You must show your working and explain your answer.

(4)

(Total for Question 17 is 8 marks)

18 Pat carried out a survey of 100 people who bought tea in her shop.

A total of 40 people bought tea in the 200 g size.

A total of 70 people bought tea bags.
5 of these people bought tea bags in the 50 g size.
37 of these people bought tea bags in the 100 g size.

Nobody bought Loose tea in the 50 g size.
10 people bought Loose tea in the 100 g size.
7 people bought Loose tea in the 200 g size.

2 people bought instant tea in the 50 g size.

Complete the two-way table.

Size	Tea bags	Loose tea	Instant tea	Total
50 g				
100 g				
200 g				
Total				100

(Total for Question 18 is 5 marks)

***19** The diagram shows part of the design of a stained glass window.

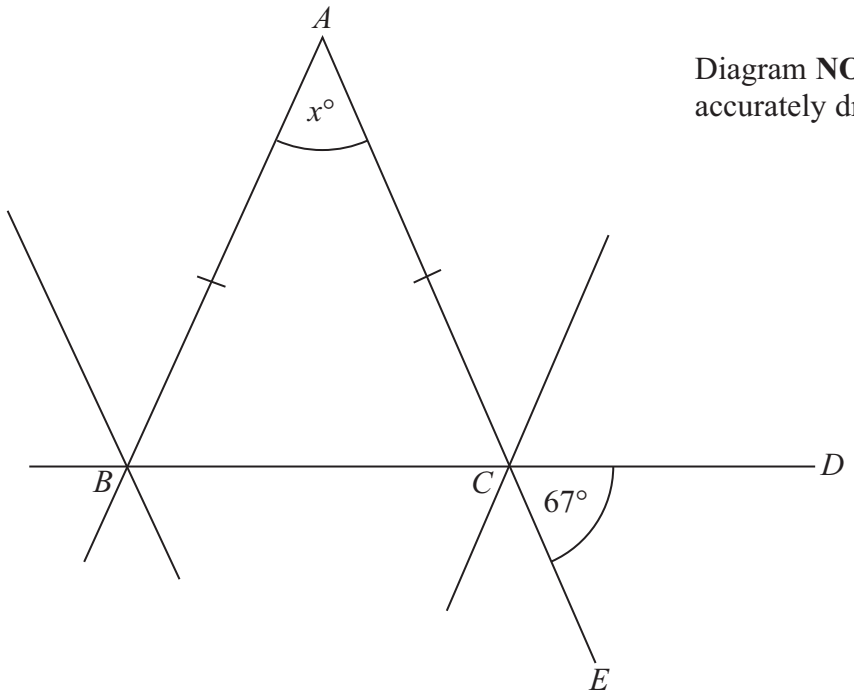


Diagram **NOT** accurately drawn

ABC is an isosceles triangle.
BCD and *ACE* are straight lines.
Angle *DCE* = 67°.

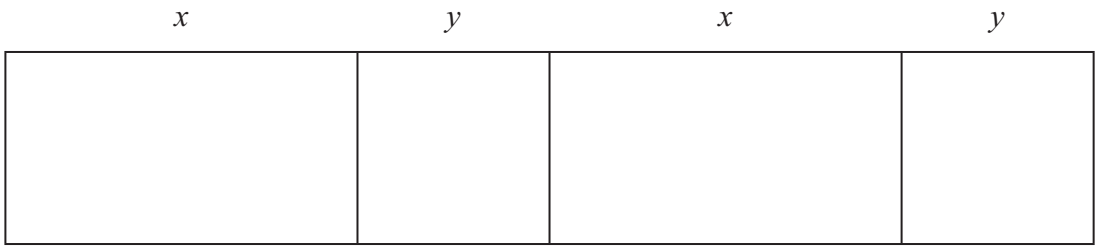
Work out the size of the angle marked $x°$.
Give reasons for your answer.

(Total for Question 19 is 4 marks)

20 Bob owns a shop that sells wallpaper.

Bob sets up a spreadsheet to work out the number of rolls of wallpaper needed for rooms of different sizes.
He ignores the doors and the windows in his calculations.

The diagram shows the four walls of a room.



The length of each long wall is x metres.
The length of each short wall is y metres.

To work out the number of rolls of wallpaper needed Bob has to divide the total wall length by 2

	A	B	C	D
1	**Length x**	**Length y**	**Total wall length**	**Rolls of wallpaper**
2	5	3		
3				

(a) Write in the formulae that need to go into C2 and D2

C2 Total wall length .....

D2 Rolls of wallpaper .....

(4)

(b) Work out the number of rolls of wallpaper needed.

.....

(1)

(Total for Question 20 is 5 marks)

21 Ali takes his car to a garage.

Costs	
5000 mile service	£79 plus VAT at 20%
10 000 mile service	£99 plus VAT at 20%
MOT test	£39 plus VAT at 20%

The car has a 5000 mile service.
It also has an MOT test.

(a) Work out Ali's total bill.

£ .....

(3)

Ali bought his car for £20 000

The car depreciated by 20% the first year.
The car depreciated by 10% the second year.

(b) Work out the value of the car at the end of the second year.

£ .....

(3)

(Total for Question 21 is 6 marks)

TOTAL FOR PAPER IS 100 MARKS

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