

Name: \_\_\_\_\_

GCSE Maths Practice Paper  
CCEA Unit M3  
Set A  
Calculator Paper



### Equipment

1. A black ink ball-point pen.
2. A pencil.
3. An eraser.
4. A ruler.
5. A pair of compasses.
6. A protractor.
7. A calculator

### Guidance

1. Read each question carefully.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

### Information

1. Time: 2 hours
2. The maximum mark for this paper is 100.
3. The marks for questions are shown in brackets
4. You may use tracing paper.

Question	Mark	Available
1		5
2		4
3		3
4		5
5		3
6		4
7		4
8		4
9		4
10		6
11		6
12		2
13		4
14		5
15		5
16		6
17		2
18		3
19		3
20		4
21		2
22		3
23		4
24		6
25		3
Total		100

1. Mr and Mrs O’Sullivan and their three children want to book a holiday.

The table shows information about the prices of the flights

Month	Price per person
June	£90
July	£105
August	£115

This table shows the price of room per night for the whole family.

Room	June	July	August
Superior	£40 per night	£52 per night	£55 per night
Family	£50 per night	£65 per night	£70 per night
Deluxe	£80 per night	£85 per night	£90 per night

Mr and Mrs O’Sullivan decide to go on a 14 night holiday in July, staying in a Deluxe room.

Work out the total price of the flights and hotel for their holiday.

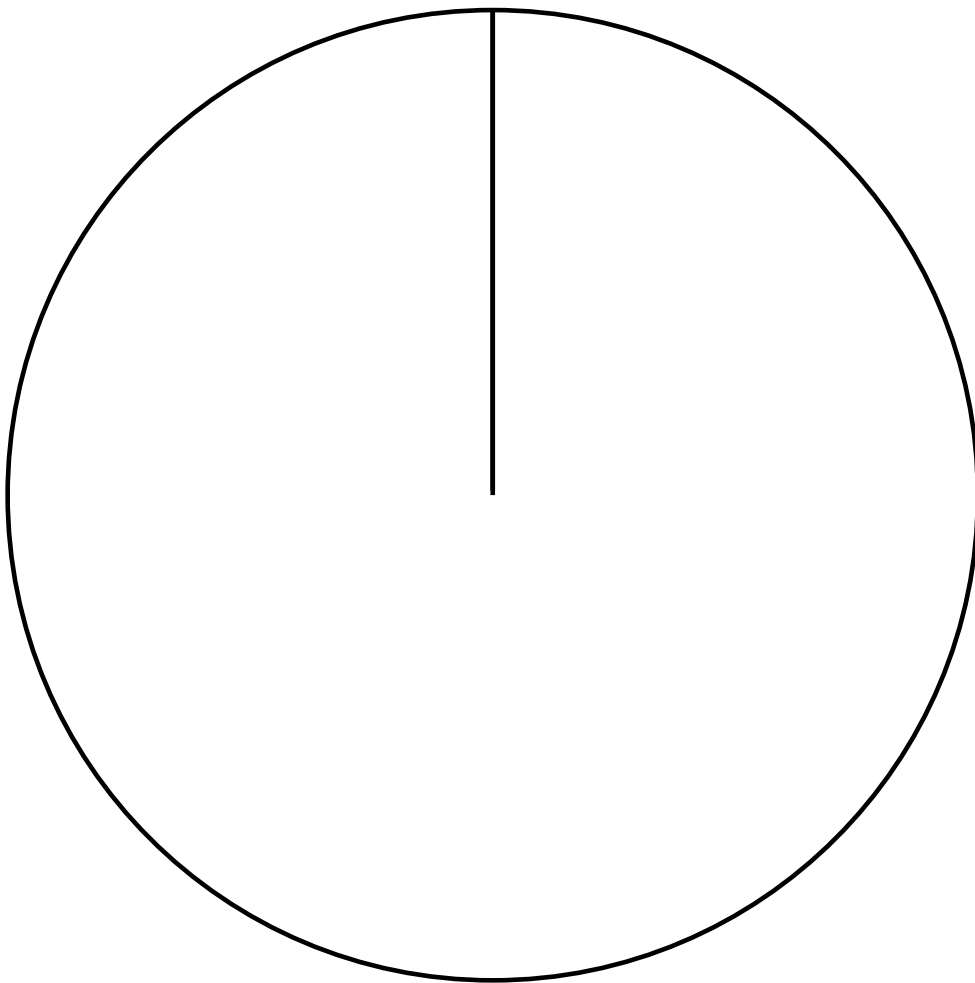
£.....

(5)

2. The table shows information on the number prizes given out in prize day.

Year Group	Frequency
7	5
8	17
9	20
10	8

Draw a pie chart for this information

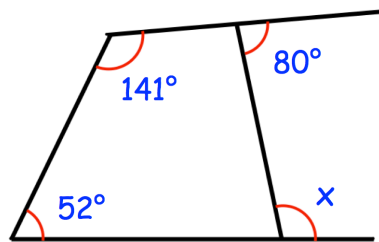


(4)

3. Michael is going to buy a car.  
 The car costs £24000.  
 He pays a deposit of 15%.  
 Michael pays the rest of the money over 20 monthly payments.  
 Work out the cost of each monthly payment.

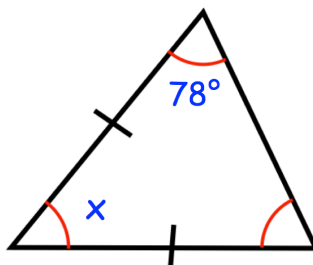
£.....  
**(3)**

4. (a) Work out the size of the angle x



.....<sup>o</sup>  
**(3)**

- (b) Work out the size of the angle x



.....<sup>o</sup>  
**(2)**

5. Carolyn invested £700 for 2 years at 3% per annum simple interest.

Work out the total amount of interest Carolyn earned.

£.....  
**(3)**

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6. Plums cost £2.40 per kg.  
Marissa buys 1.9kg of plums and 3.8kg of apples.  
The total cost is £10.64

Work out the cost for 2kg of apples.

£.....  
**(4)**

7. (a) Helen takes 25 shots at basketball training.  
She misses 7 shots.

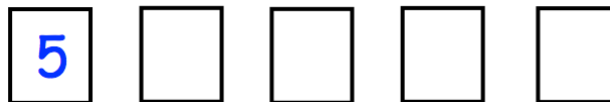
What percentage of the shots did Helen miss?

.....  
(2)

- (b) Last season Cleo scored 280 points.  
This season she scored 45% more points.  
How many points did Cleo score this season?

.....  
(2)

- 
8. Shown below are five cards which are arranged in order from smallest to largest



The range of the cards is 6.  
The median of the cards is 7.  
The mean of the cards is 8.

Work out the 4 missing numbers.

(4)

9. A gym runs two fitness classes, spinning and circuits.

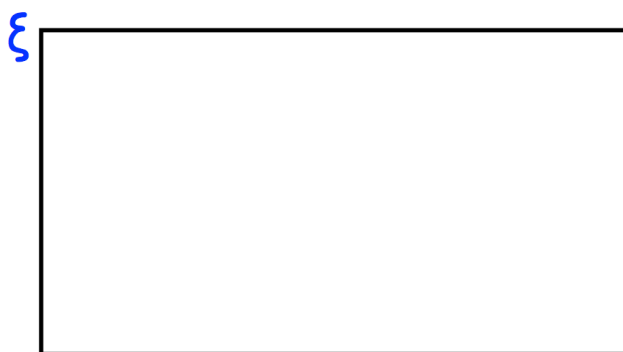
On Saturday 100 people visited the gym.

18 people attended the spinning class.

10 people attended both classes.

56 people did not attend either class.

(a) Represent this information on a Venn diagram

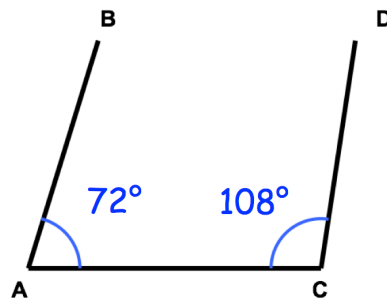


**(3)**

(b) How many people attend only one class?

.....  
**(1)**

10. (a) Odhran says the lines AB and CD are parallel.  
Is Odhran correct?  
Explain your answer.



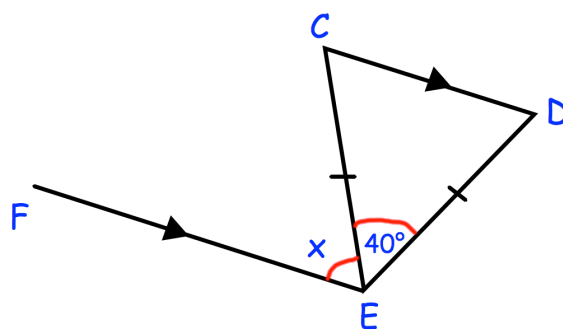
Not drawn accurately

.....

.....

(3)

- (b) Find the size of the angle x.



.....<sup>o</sup>

(3)



11. Nathan delivers pizzas in Dungannon.

The table below shows information about his delivery times,  $t$  minutes.

Delivery Time	Frequency
$0 < t \leq 10$	3
$10 < t \leq 20$	10
$20 < t \leq 30$	14
$30 < t \leq 40$	19
$40 < t \leq 50$	4

(a) Calculate an estimate for the mean delivery time

.....  
**(4)**

If Nathan takes longer than 40 minutes to deliver the pizza, the customer receives a free garlic bread.

(b) What percentage of his deliveries receive a free garlic bread?

.....%  
**(2)**

12. Expand and simplify  $6(3x + 2) - 2(5x - 7)$

.....  
(2)

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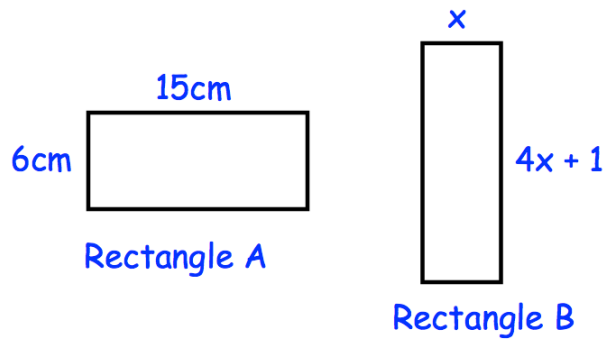
13. (a) Write 675 as a product of prime factors.  
Express your answer in index form.

.....  
(3)

(b) Hence find the **least** number by which 675 would need to be multiplied by to give a cube number.

.....  
(1)

14.

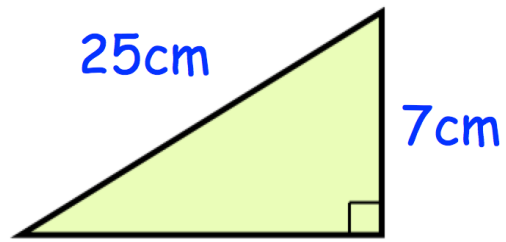


Both rectangles have the same perimeter.

Find the area of rectangle B.

.....cm<sup>2</sup>  
(5)

15. Here is a right angle triangle.



Calculate the area of the triangle.

.....cm<sup>2</sup>  
**(5)**

16. (a) The value of a painting rises from £120,000 to £192,000.

Work out the percentage increase in the value of the painting.

.....%

**(2)**

(b) Parker bought a house.

In the first year the value of the house decreased by 10%.

In the second year the value of the house increased by 10%.

Is the house worth more, less, or the same as what Parker paid for it?

Show your working out.

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**(4)**

17. Factorise

(a)  $14 - 22x$

.....  
**(1)**

(b)  $w^3 + w$

.....  
**(1)**

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18. Hannah is baking two cakes.

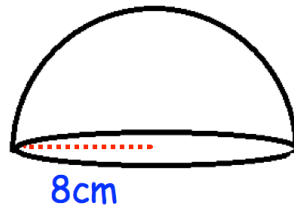
One cake needs  $1\frac{1}{3}$  cups of milk.

Hannah has  $1\frac{1}{4}$  cups of milk.

How much more milk does Hannah need?

.....  
**(3)**

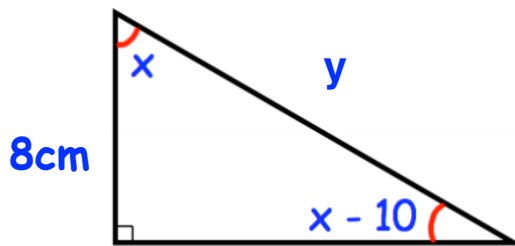
19. Shown below is a solid hemisphere with a radius of 8cm.



Find the volume of the hemisphere

.....cm<sup>3</sup>  
(3)

20. Here is a right angled triangle.



Work out the length of the side labelled y.

.....cm  
(4)

21. Solve the equation  $y^2 + y - 42 = 0$

.....  
(2)

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22. Find the equation of the line that is parallel to  $2y + 4x = 9$  and passes through the point  $(0, 3)$

.....  
(3)

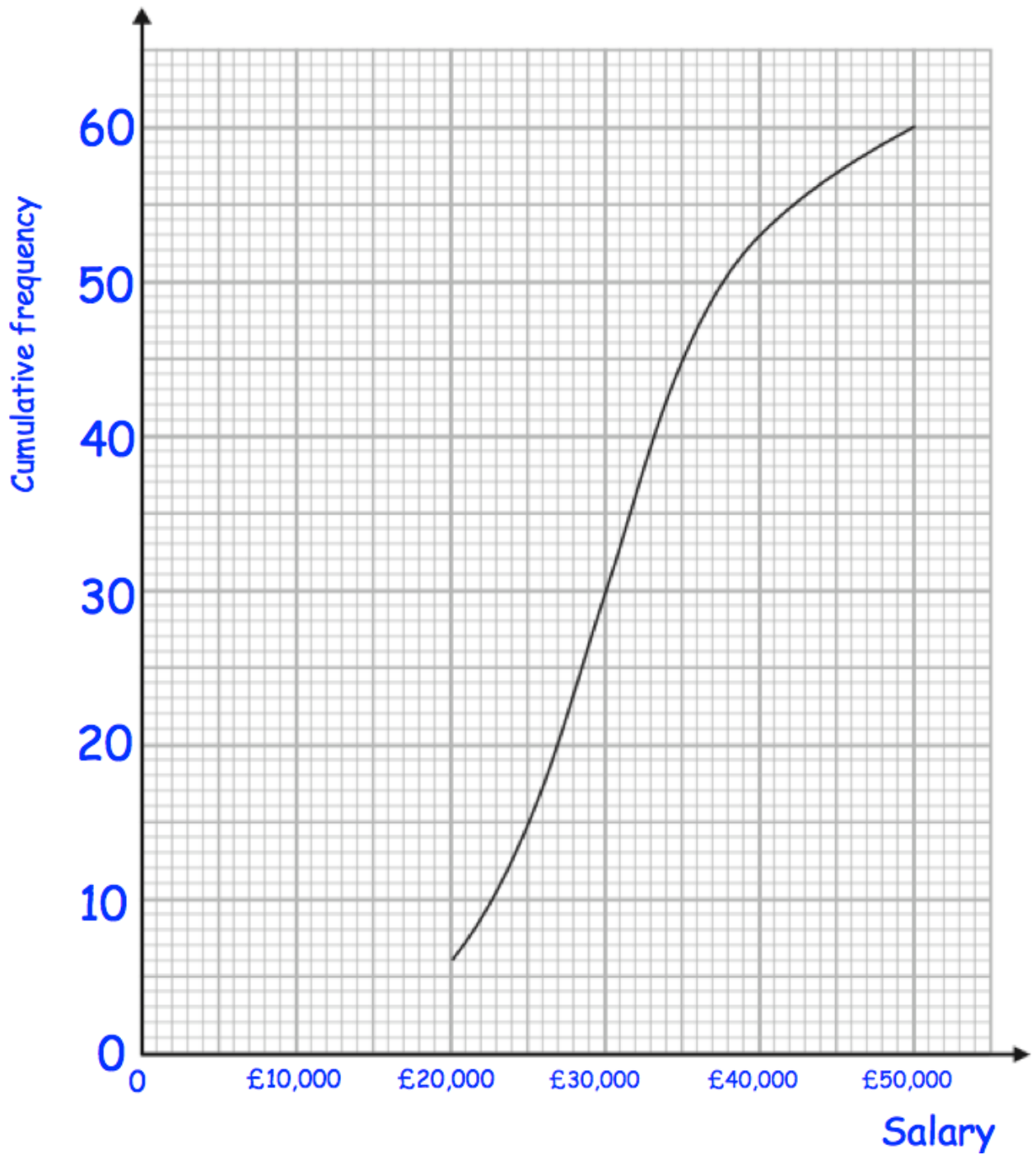
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23. Solve  $\frac{x - 3}{4} + \frac{x + 1}{2} = \frac{11}{16}$

.....  
(4)



24. A university surveyed 60 mathematics graduates on their starting salary. The cumulative frequency graph shows some information about the salaries.

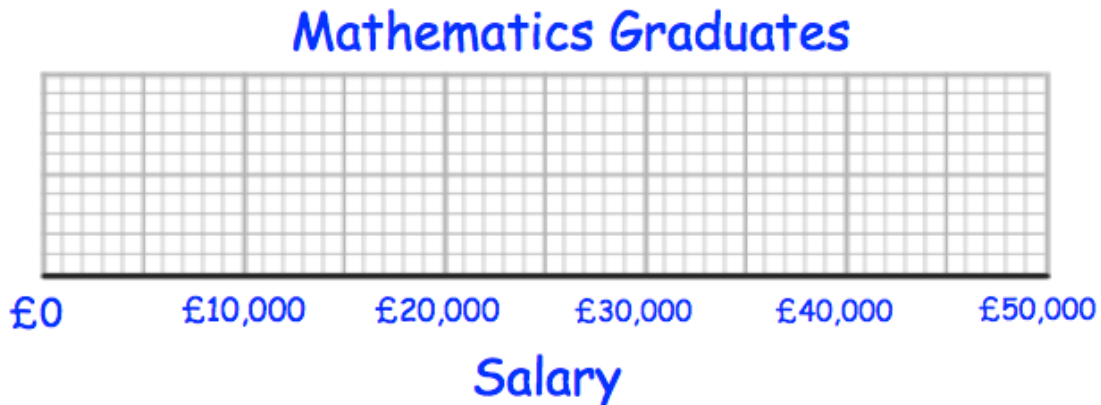


- (a) Use the graph to find an estimate for the median salary.

£.....  
(1)

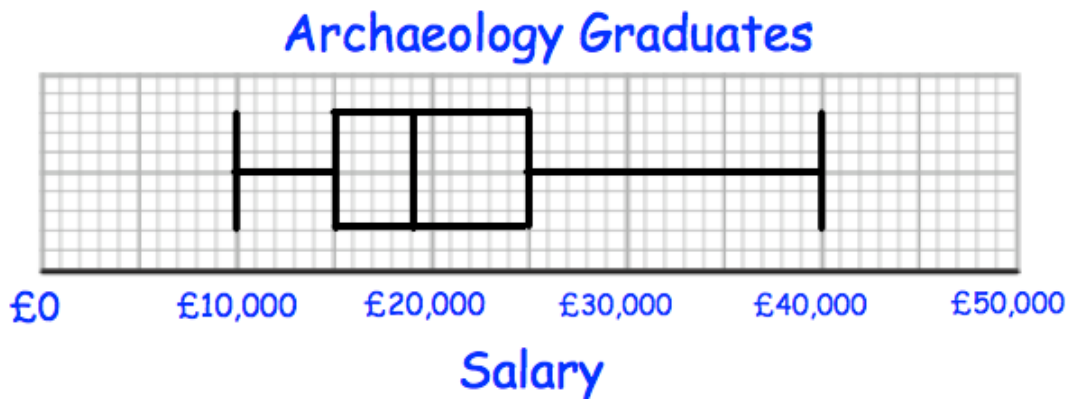
The 60 mathematics graduates  
 had a minimum salary of £16,000  
 and a maximum salary of £48,000.

- (b) Use this information and the cumulative frequency curve to draw a box plot for the 60 mathematics graduates.



(3)

The university also surveyed 60 archaeology graduates.  
 The box plot below shows information about their salaries.



- (c) Compare the distribution of the salaries of the mathematics graduates with the distribution of the salaries of the archaeology graduates.

.....

.....

.....

(2)

25. In 2013, Evan bought a car.

In 2019, Evan sold the car to Grace.  
Evan made a loss of 25%

In 2021, Grace sold the car for £15225  
Grace made a profit of 45%

Work out how much Evan bought the car for in 2013.

£.....  
**(3)**