JustMaths

Paper 2 (Calculator)

BEST GUESS FOUNDATION

Name: _____

Total Marks: _____

Q.	Max	Actual	RAG		Q.	Max	Actual	RAG
1	3				17	3		
2	2				18	7		
3	2				19	2		
4	2				20	1		
5	4				21	3		
6	4				22	4		
7	3				23	4		
8	3				24	2		
9	4				25	5		
10	2				26	3		
11	4				27	5		
12	5				28	3		
13	2				29	4		
14	2				30	3		
15	5				31	2		
16	2							

1. Work out 4.52 × 36

(Total for Question 1 is 3 marks)

2. Here is a tile in the shape of a semicircle.

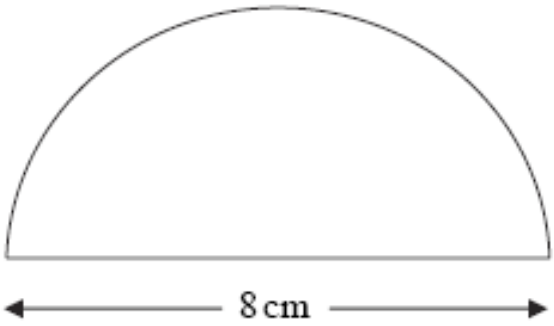


Diagram **NOT** accurately drawn

The diameter of the semicircle is 8 cm.

Work out the perimeter of the tile.

Give your answer correct to 2 decimal places.

..... cm

(Total for Question 2 is 2 marks)

3. (a) Simplify $t^6 \times t^2$

.....

(1)

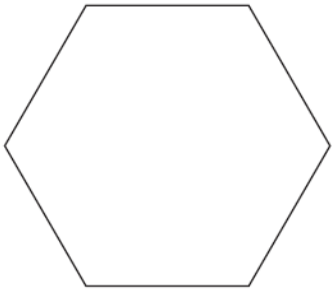
(b) Simplify $\dfrac{m^8}{m^3}$

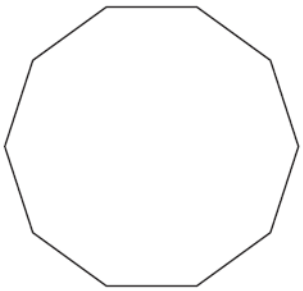
.....

(1)

(Total for Question 3 is 2 marks)

4. Write down the mathematical name of each of these polygons.





....

(Total for Question 4 is 2 marks)

5. (a) Factorise $3x + 12$

.....

(1)

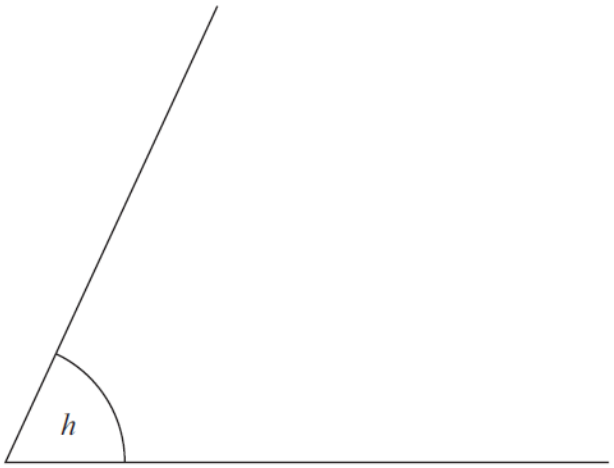
(b) Solve $4(2x - 3) = 5x + 7$

x = ...

(3)

(Total for Question 5 is 4 marks)

6.



(*a*) (i) What type of angle is angle *h*?

.....

(ii) Measure the size of angle *h*.

.....°

(2)

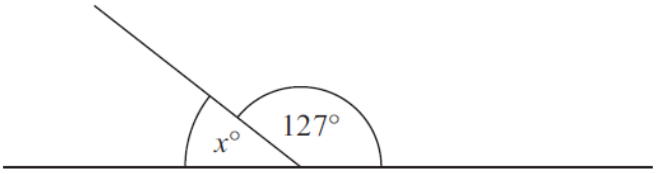


Diagram **NOT** accurately drawn

(*b*) (i) Work out the value of *x*.

x = ...

(ii) Give a reason for your answer.

.....

.....

(2)

(Total for Question 6 is 4 marks)

7. Jan writes down

one multiple of 9

two different factors of 40

Jan adds her three numbers together.The answer is greater than 20 but less than 30

What three numbers could Jan have written down?

....

(Total for Question 7 is 3 marks)

8. (*a*) Use your calculator to work out $\frac{\sqrt{4.1 \times 2.9}}{0.5 \times 19.6}$

Write down all the figures on your calculator display.

You must give your answer as a decimal.

.....

(2)

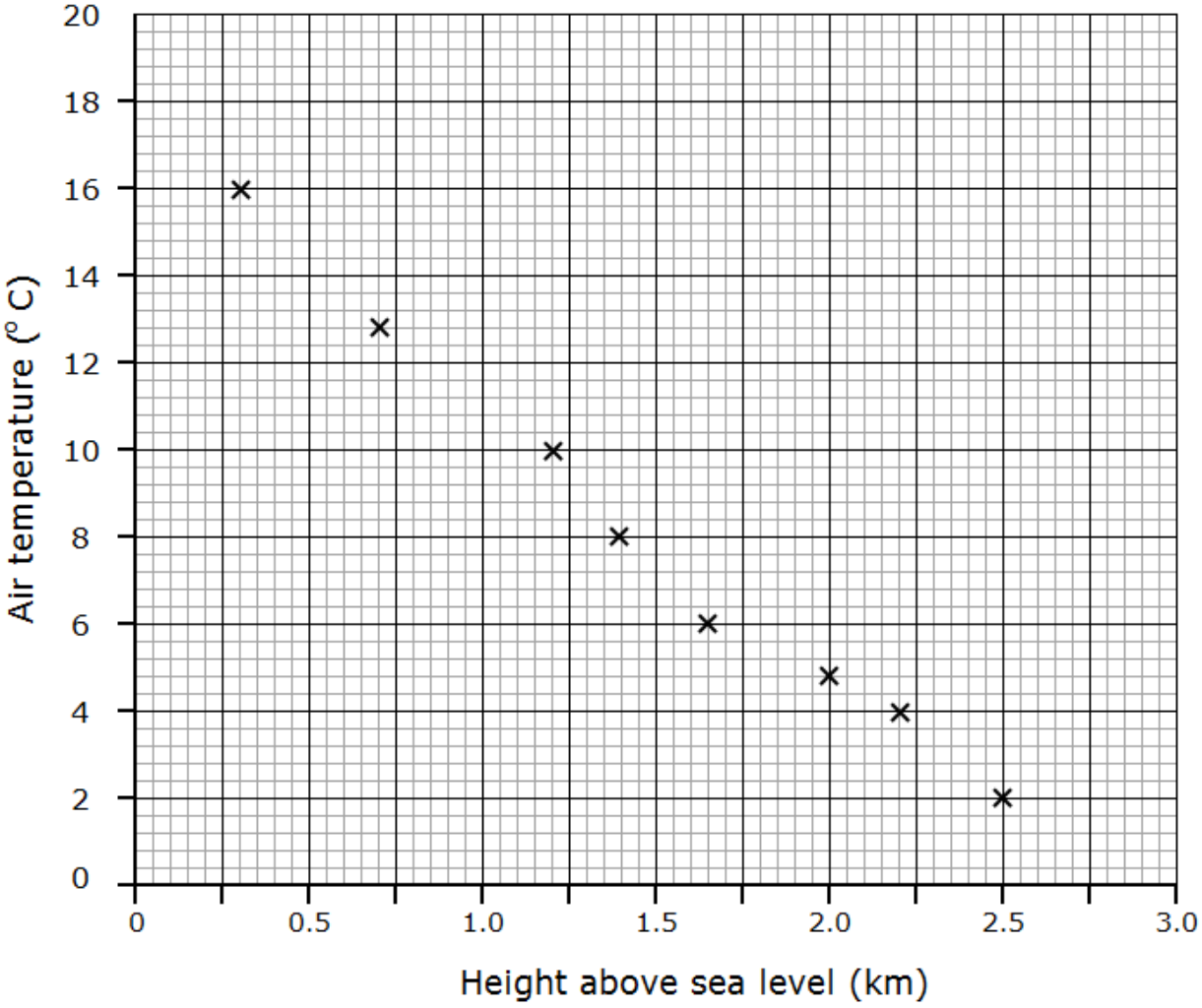
(*b*) Write your answer to part (*a*) correct to 2 decimal places.

.....

(1)

(Total for Question 8 is 3 marks)

9. On a particular day, a scientist recorded the air temperature at 8 different heights above sea level. The scatter diagram shows the air temperature y^{o}C, at each of these heights x km, above sea level.



Using the scatter diagram, write down the air temperature recorded at a height of 2.5 km above sea level.

Describe the correlation between the air temperature and the height above sea level.

Find an estimate of the height above sea level when the air temperature is 0^{o} C.

(Total for Question 9 is 4 marks)

10. Write the number 84 as a product of its prime factors. Give your answer in index form

(Total for Question 10 is 2 marks)

11. Carla has a box of chocolates which contains milk chocolates and dark chocolates only.

The number of milk chocolates to the number of dark chocolates is in the ratio 2 : 1

There are 36 chocolates in the box.

Work out the number dark chocolates.

.....

(2)

Carla also has a tin of chocolates.

There are 60 chocolates in the tin.

35% of the chocolates have toffee in the middle.

(*b*) Work out the number of chocolates that have toffee in the middle.

.....

(2)

(Total for Question 11 is 4 marks)

12. Vicky counts the number of birds in her garden at 8 am on each of 10 days.

5 3 3 2 0 2 4 2 4 15

Write down the mode.

.....

(1)

(*b*) Work out the mean.

.....

(2)

Vicky counts the number of birds in her garden at 5 pm on each of 20 days.

She records the information in a frequency table.

Number of birds	Frequency
0	3
1	2
2	3
3	4
4	5
5	3

(*c*) Work out the total number of birds Vicky records in the frequency table.

.....

(2)

(Total for Question 12 is 5 marks)

13. Katie has a six-sided die with numbers 1 to 6 on the faces, which she suspects is biased. She throws the die a large number of times to estimate the probability of getting each number. She shows her results in this table.

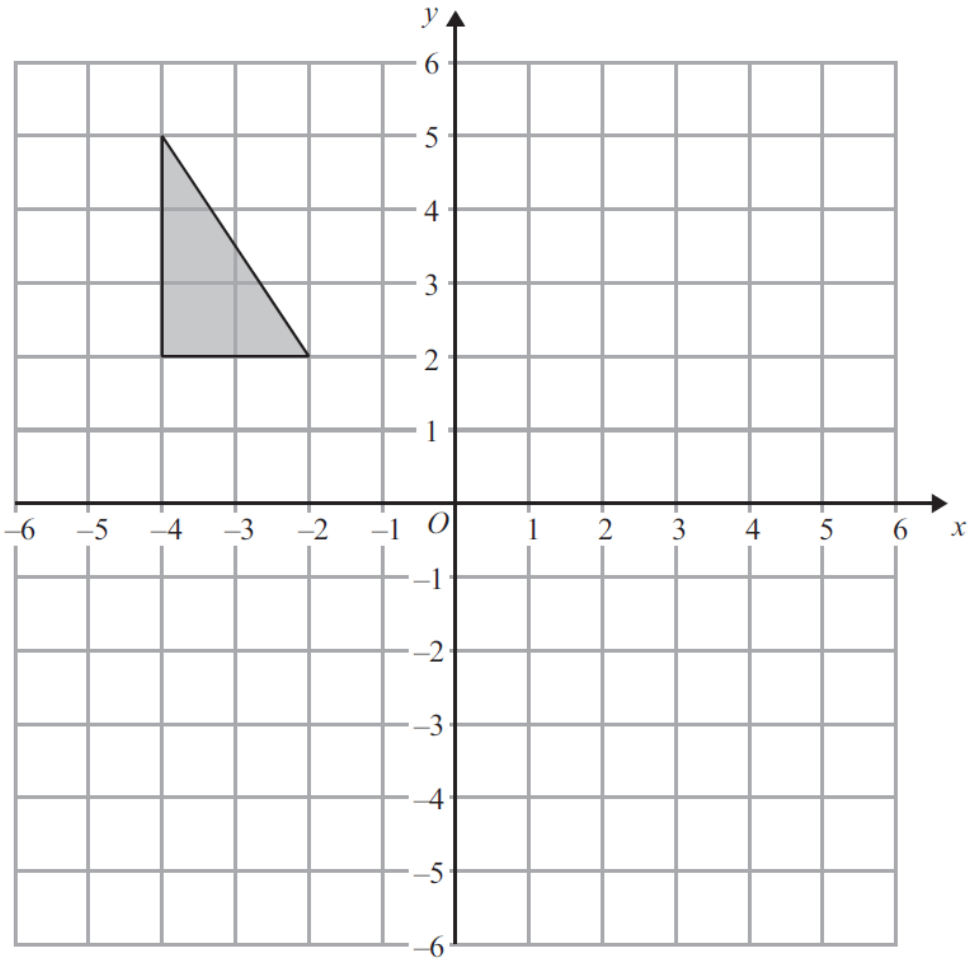
Number	1	2	3	4	5	6
Probability	0.12	0.15	0.12	0.14	0.16	

Complete the table.

(2)

(Total for Question 13 is 2 marks)

14. Reflect the shaded triangle in the x-axis.



(Total for Question 14 is 2 marks)

15. (*a*) Solve $e + e + e + e + e = 45$

.....

(1)

(*b*) Solve $18 - x = 13$

.....

(1)

(*c*) Solve $2(y - 5) = 24$

.....

(2)

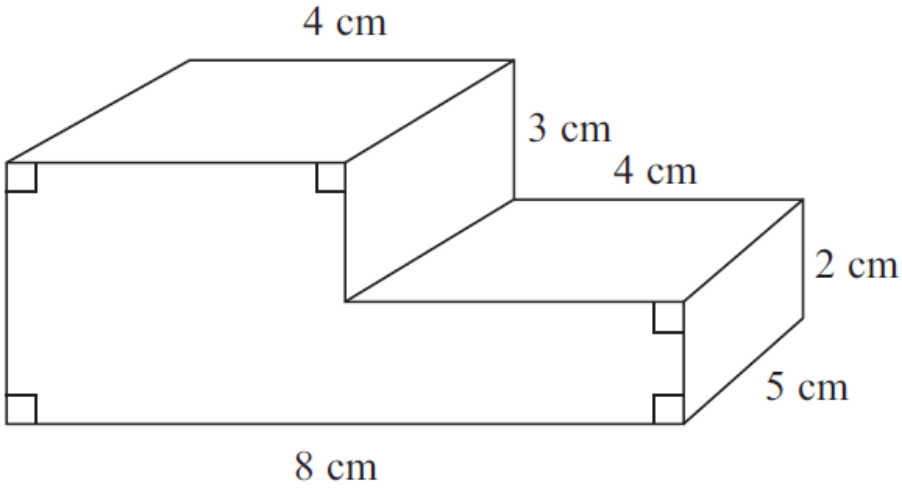
(*d*) Factorise $15p + 40$

.....

(1)

(Total for Question 15 is 5 marks)

16. The diagram shows a solid prism.



On the centimetre square grid, draw the plan view of the solid prism.

(2)

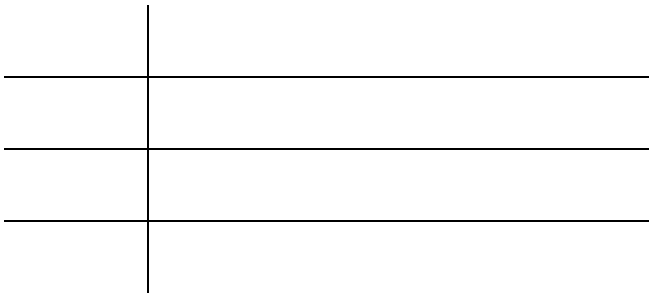
(Total for Question 16 is 2 marks)

17.

Here are the ages, in years, of 15 teachers.

35	52	42	27	36
23	31	41	50	34
44	28	45	45	53

Draw an ordered stem and leaf diagram to show this information. You must include a key.



Key:

(3)

(Total for Question 17 is 3 marks)

18. The table gives information about the temperature, T °C, at noon in a town for 60 days.

Temperature (T °C)	Frequency
10 - 13	7
14 - 17	9
18 - 21	16
22 - 25	22
26 - 29	6

Write down the class interval in which the median lies.

.....

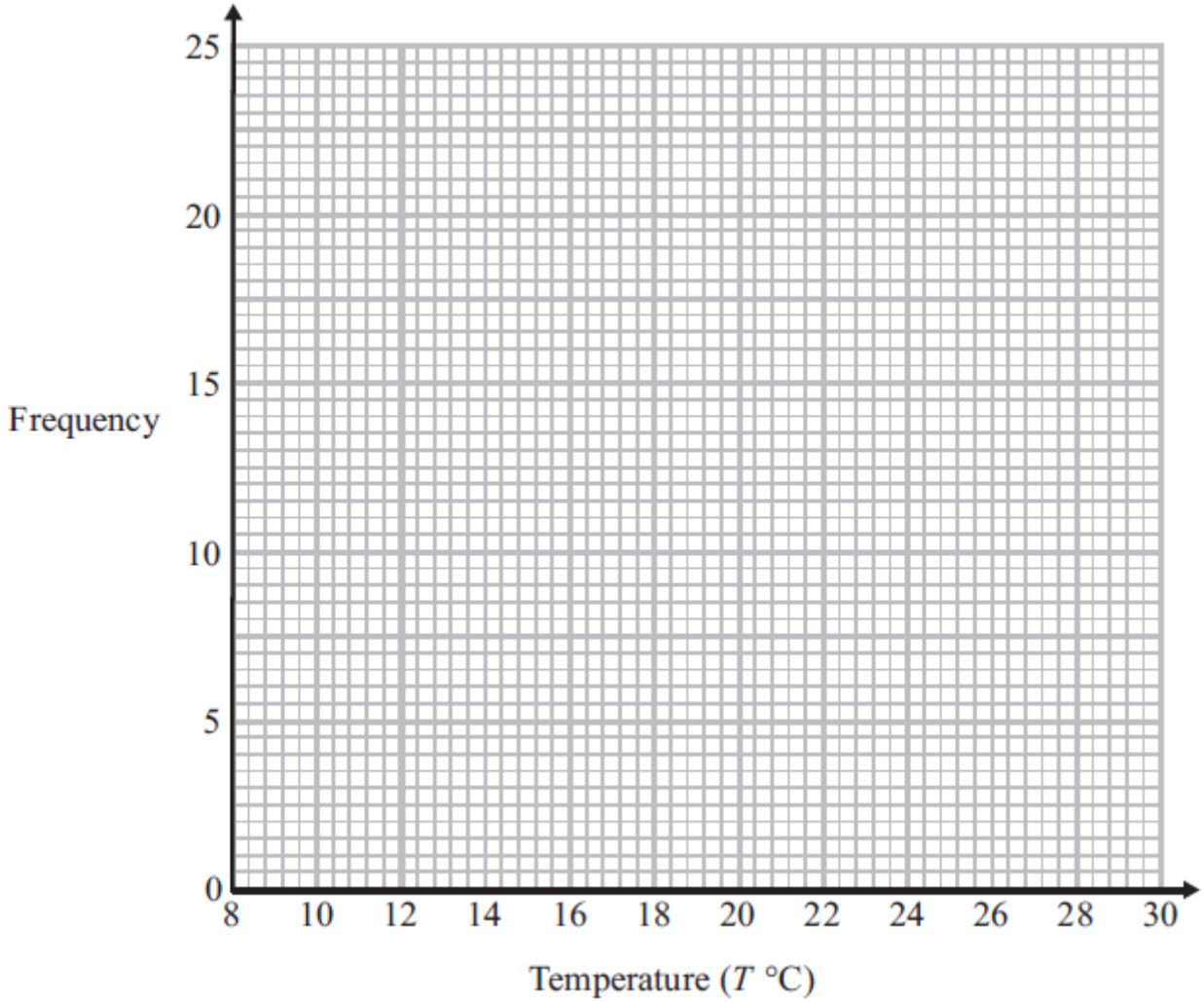
(1)

(*b*) Calculate an estimate for the mean temperature.

..... °C

(4)

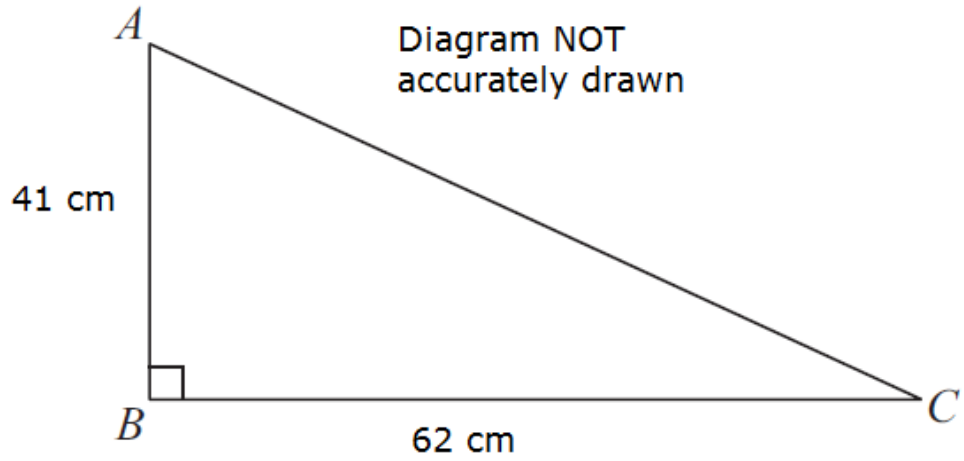
(*c*) Draw a frequency polygon for the information in the table.



(2)

(Total for Question 18 is 7 marks)

19. Here is a right-angled triangle.

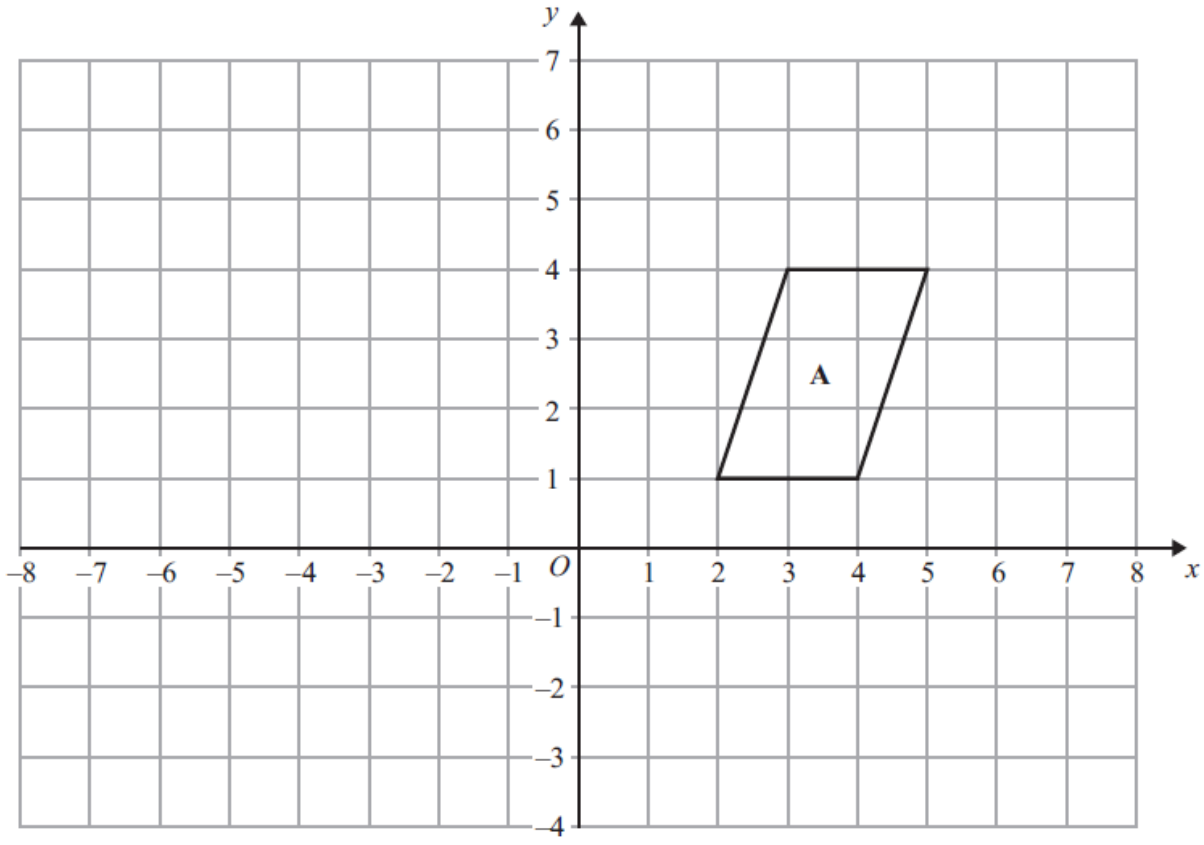


Work out the length of *AC*. Give your answer correct to 2 significant figures.

..... cm

(Total for Question 19 is 2 marks)

20. Translate A by vector $\begin{pmatrix} 2 \\ -2 \end{pmatrix}$.



(1)

(Total for Question 20 is 1 mark)

21.

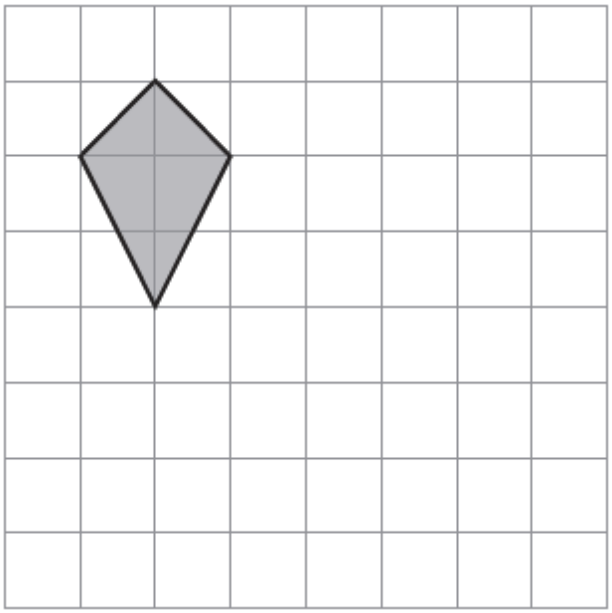
Here is a quadrilateral.

Write down the mathematical name of this quadrilateral.

.....

(1)

On the grid below, show how the shaded shape can tessellate. You should draw at least six shapes.



(2)

(Total for Question 21 is 3 marks)

22. 18. The equation $x^3 + 3x = 41$ has a solution between 3 and 4

Use a trial and improvement method to find this solution.

Give your answer correct to one decimal place.

You must show **all** your working.

Answer x =..... *(4 marks)*

(Total for Question 22 is 4 marks)

23. There are some sweets in a bag.

18 of the sweets are toffees.

12 of the sweets are mints.

Write down the ratio of the number of toffees to the number of mints.

Give your ratio in its simplest form.

..... : .....

(2)

There are some oranges and apples in a box.

The total number of oranges and apples is 54

The ratio of the number of oranges to the number of apples is 1 : 5

Work out the number of apples in the box.

.....

(2)

(Total for Question 23 is 4 marks)

24. A circle has a diameter of 140 cm.

Work out the circumference of the circle.

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 24 is 2 marks)

25. Sarah works in a post office.

She recorded the number of parcels posted on each of 16 days.

Here are her results.

2	2	5	3	2	4	2	2
3	6	4	6	2	2	3	3

(a) Complete the frequency table to show Sarah's results.

Number of parcels	Tally	Frequency
2		
3		
4		
5		
6		

(2)

(b) Write down the mode.

.....

(1)

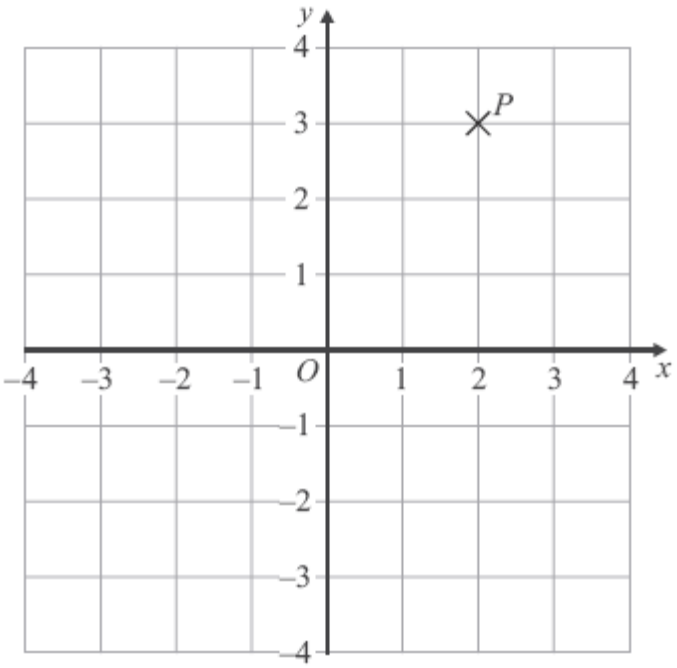
(c) Work out the range.

.....

(2)

(Total for Question 25 is 5 marks)

26. Write down the coordinates of the point P.



(..... , ...)

(1)

(b) (i) On the grid, plot the point (1, 2). Label the point Q.

(ii) On the grid, plot the point (−3, −2).Label the point R.

(2)

(Total for Question 26 is 3 marks)

27. The table shows the percentage of each type of book in a library.

Type of book	Percentage
Children's	24%
General	42%
Mystery	13%
Romance	15%
Science fiction	2%
Thriller	4%

(a) What type of book has the smallest percentage?

.....

(1)

(b) Write 13% as a decimal.

.....

(1)

(c) Write 24% as a fraction. Give your answer in its simplest form.

.....

(1)

There are 3000 books in the library. Work out 15% of 3000

.....

(2)

(Total for Question 27 is 5 marks)

28. 36 students each went to one revision class.

$\frac{1}{6}$ of the students went to the physics revision class.

$\frac{2}{9}$ of the students went to the biology revision class.

All of the other students went to the chemistry revision class.

How many students went to the chemistry revision class?

.....

(Total for Question 28 is 3 marks)

29. Tania went to Italy. She changed £325 into euros (€).

The exchange rate was £1 = €1.68

(a) Change £325 into euros (€).

€ .....

(2)

When she came home she changed €117 into pounds.

The new exchange rate was £1 = €1.50

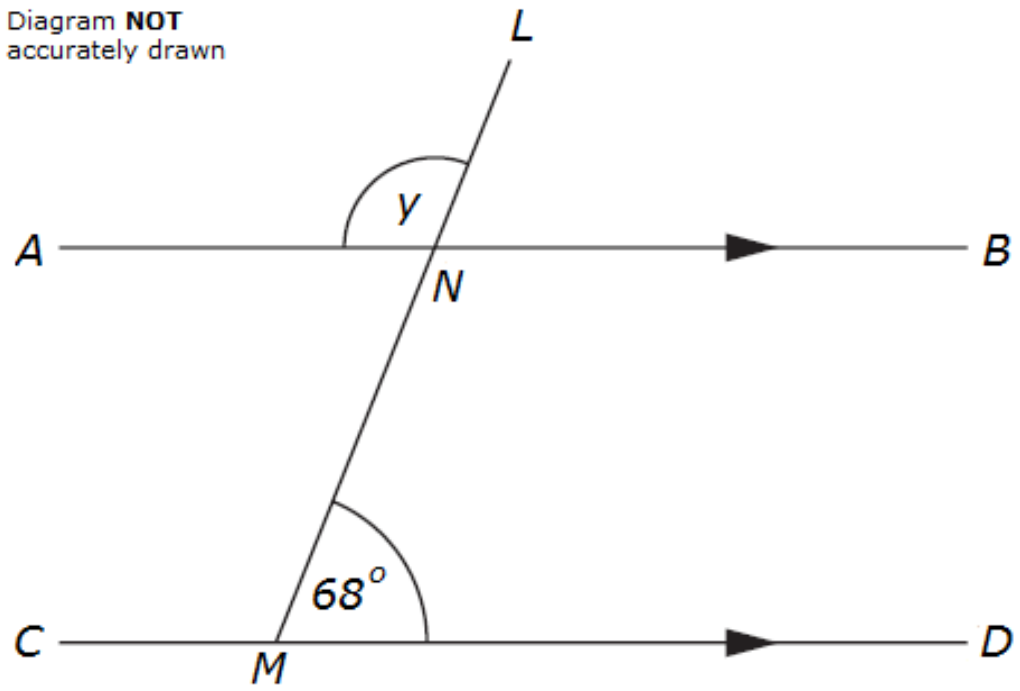
(b) Change €117 into pounds.

£ .....

(2)

(Total for Question 29 is 4 marks)

30.



ANB is parallel to *CMD.*

LNM is a straight line.

Angle *LMD* = 68^o.

Work out the size of the angle marked *y.*

Give reasons for your answer.

(3)

(Total for Question 30 is 3 marks)

31. Kunal goes to a café.He can choose one drink and one snack.

Drinks
Milk
Juice
Water

Snacks
Apple
Sandwich
Biscuit

One possible combination is (Milk, Apple).

Write down all the possible combinations Kunal can choose.

The first one has been done for you.

(M, A) .....

.....

.....

(Total for Question 31 is 2 marks)

TOTAL FOR PAPER IS 100 MARKS