

Write your name here	
Surname	Other names
Pearson Edexcel	Centre Number
Level 1/Level 2 GCSE (9-1)	Candidate Number
<h1 style="margin: 0;">Mathematics</h1> <p style="margin: 5px 0;">Non calculator paper questions June/November 2017</p> <p style="text-align: right; margin: 0;">Foundation Tier</p>	
adapted & compiled by JustMaths	Paper Reference 1MA1/1F
<p>You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.</p>	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.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**



Information

- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

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.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (a) Change 486 cm into metres.

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

(b) Change 3.7 kg into grams.

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

2 Work out $3 + 6 \times 10$

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

3 Solve $\frac{y}{5} = 12.5$

$y =$ **(1)**

4 Work out the value of 3^4

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

5 Simplify $7 \times e \times f \times 8$

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

6 Write $\frac{3}{5}$ as a percentage.

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

7 Work out 70% of 60.

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

8 Write 8.264 56 correct to 4 decimal places.

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

9 Here are four numbers.

-7 -4 4 7

Write one of these numbers in each box to make a correct calculation.

[] + [] = -3

(1)

10 Here are the first four terms of a number sequence.

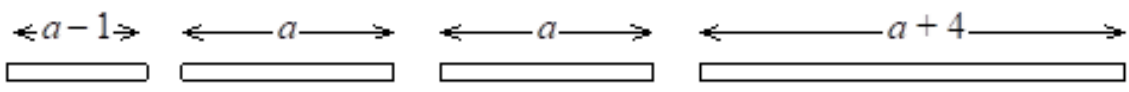
3 9 21 45

The rule to continue this sequence is multiply the previous term by 2 and then add 3

Work out the 5th term of this sequence.

..... (1)

11 Here are four straight rods.



All measurements are in centimetres. The total length of the four rods is L cm. Find a formula for L in terms of a. Write your formula as simply as possible.

..... (3)

12 (a) Work out 3/5 x 5/8

..... (1)

(b) Work out 7/8 - 2/3

..... (2)

13 A farmer has 15 boxes of eggs. There are 6 eggs in each box. Write, as a ratio, the number of eggs in two boxes to the total number of eggs. Give your answer in its simplest form.

..... (2)

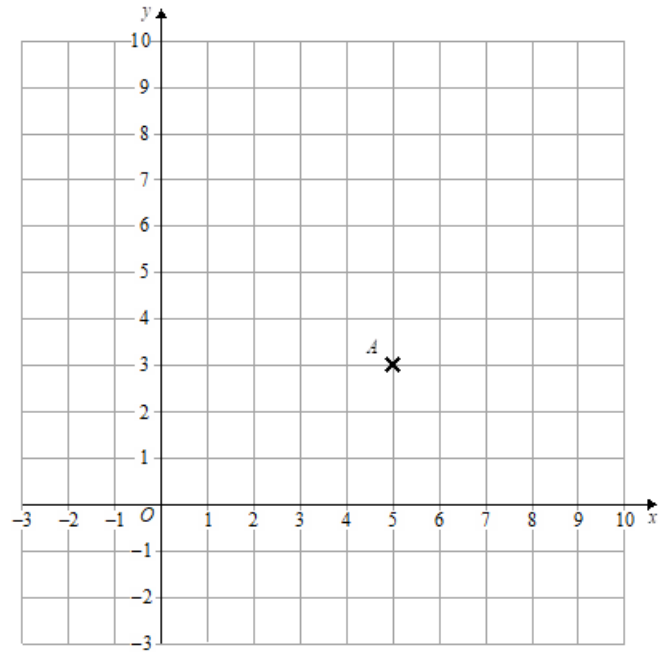
14 (a) Write down the coordinates of the point A.

(..... ,)
(1)

(b) (i) Plot the point with coordinates (-2, 9).
Label this point B.

(1)

(ii) Does point B lie on the straight line with equation $y = -4x + 1$?
You must show how you get your answer.

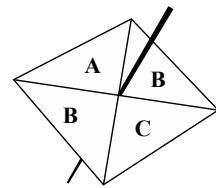


(1)

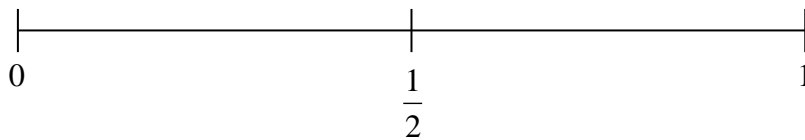
(c) On the grid, draw the line with equation $y = -1$

(1)

15 Sammy spins a fair 4-sided spinner.

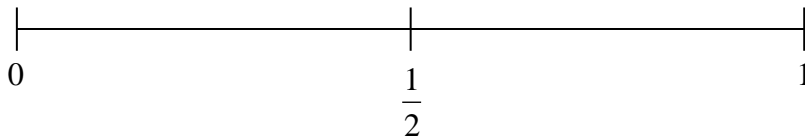


(i) On the probability scale, mark with a cross (x) the probability that the spinner will land on C.



(1)

(ii) On the probability scale, mark with a cross (x) the probability that the spinner will land on E.



(1)

16 There are only 6 blue pens, 3 green pens and 7 red pens in a box.

One pen is taken at random from the box.

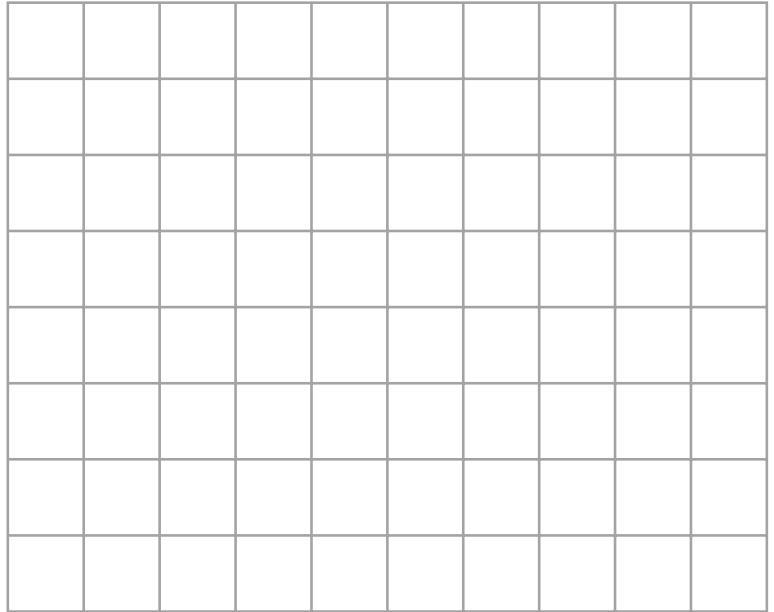
Write down the probability that this pen is blue.

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

- 17** The length of a rectangle is twice as long as the width of the rectangle.

The area of the rectangle is 18 cm^2 .

Draw the rectangle on the centimetre grid.



(2)

-
- 18** Fahima buys
2 packets of bread rolls costing £1.70 for each packet
1 bottle of ketchup costing £1.40
3 packets of sausages
Fahima pays with a £10 note.
She gets 40p change.
Fahima works out that one packet of sausages costs £2.30.
Is Fahima right?
You must show how you get your answer.



(3)

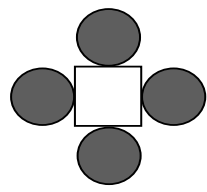
-
- 19** Sean works for a company.
His normal rate of pay is £18 per hour.
When Sean works more than 8 hours a day, he is paid overtime for each hour he works more than 8 hours.
Sean's rate of overtime pay per hour is one and a half times his normal rate of pay per hour.
On Monday Sean worked for 10 hours.
Work out the total amount of money Sean earned on Monday.

(4)

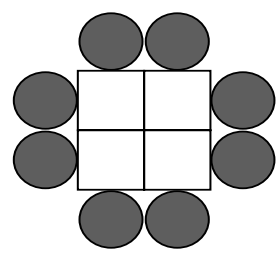
-
- 20** There are only red buttons, yellow buttons and orange buttons in a jar.
The number of red buttons, the number of yellow buttons and the number of orange buttons are in the ratio 7 : 4 : 9
Work out what percentage of the buttons in the jar are yellow.

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

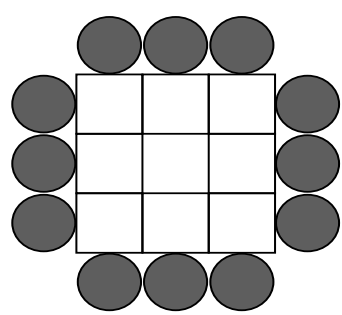
21 A sequence of patterns is made from circular tiles  and square tiles . Here are the first two patterns in the sequence.



pattern number 1



pattern number 2



pattern number 3

(a) How many square tiles are needed to make pattern number 5?

(b) How many circular tiles are needed to make pattern number 10?

Derek says:

"When the pattern number is even, an even number of square tiles is needed to make the pattern."

(c) Is Derek right? You must give reasons for your answer.

(6)

22 Jacqui wants to work out $1660 \div 5$

She knows that $1660 \div 10 = 166$

Jacqui writes:

	$1660 \div 5 = 83$
because:	$10 \div 5 = 2$
because:	$166 \div 2 = 83$

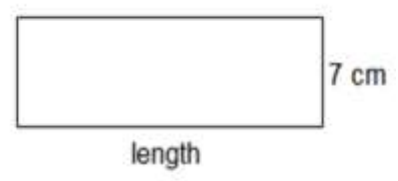
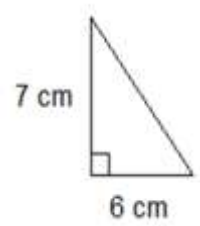
What mistake did Jacqui make in her method?

(1)

23 Here are a triangle and a rectangle.

The area of the rectangle is 5 times the area of the triangle.

Work out the width of the rectangle.



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

24 The diagram shows a tree and a man.



The man is of average height.
 The tree and the man are drawn to the same scale.

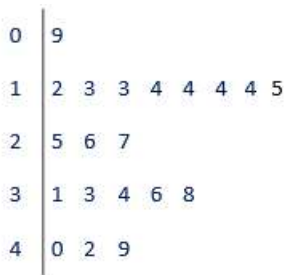
- (a) Write down an estimate for the real height, in metres, of the man.
 metres **(1)**
- (b) Find an estimate for the real height, in metres, of the tree.
 metres **(2)**

25 Jake and Sarah each played a computer game six times.
 Their scores for each game are shown below.

Sarah	11	10	9	11	13	9
Jake	3	11	8	16	5	11

- (a) Who had the most consistent scores, Jake or Sarah?
 You must give a reason for your answer.
 **(1)**

Jake played a different game 20 times.
 The stem and leaf diagram shows information about his scores.



Key
 1 | 2 represents 12 points

- Jake said his modal score was 4 points because 4 occurs most often in the diagram.
- (b) Is Jake correct? You must explain your answer.
 **(1)**

26 $v = u + at$ when $u = 2$ $a = -3$ and $a = \frac{1}{2}$
 Work out the value of v .

$v = \dots\dots\dots$ **(2)**

27 (a) Solve $6(x - 4) = 21$

$x = \dots\dots\dots$ **(2)**

$-4 < t \leq 1$ t is an integer.

(b) Write down all the possible values of t .

$\dots\dots\dots$ **(2)**

28 There are 32 children in a nursery school. At least 1 adult is needed for every 6 children in the nursery.
 (a) Work out the least number of adults needed in the nursery.

$\dots\dots\dots$ **(2)**

2 more children join the nursery.

(b) Does this mean that more adults are needed in the nursery?
 You must give a reason for your answer.

(1)

29 Emma has 35 rabbits.

20 of the rabbits are male.

8 of the female rabbits have short hair.

12 of the rabbits with long hair are male.

(a) Use the information to complete the two-way table..

	Male	Female	Total
Long hair			
Short hair			
Total			

(3)

One of Emma's rabbits is chosen at random.

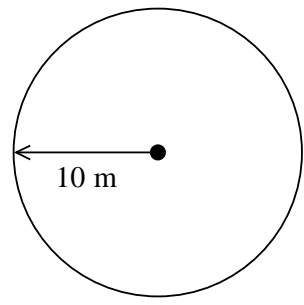
(b) Write down the probability that this rabbit is a female with short hair.

$\dots\dots\dots$ **(1)**

30 3 tins of soup have a total weight of 1050 grams.
2 tins of soup and 3 packets of soup have a total weight of 790 grams.
Work out the total weight of 3 tins of soup and 2 packets of soup.

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

31 Balena has a garden in the shape of a circle of radius 10 m.
He is going to cover the garden with grass seed to make a lawn.
Grass seed is sold in boxes.
Each box of grass seed will cover 51 m² of garden.
Balena wants to cover all the garden with grass seed.



(a) Work out an estimate for the number of boxes of grass seed Balena needs.
You must show your working.

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

(b) Is your estimate for part (a) an underestimate or an overestimate?
Give a reason for your answer.

(1)

32 The total surface area of a cube is 150 cm².
Work out the volume of the cube.

..... cm³ **(4)**

33 Here are two fractions.

$$\frac{3}{4} \qquad \frac{4}{3}$$

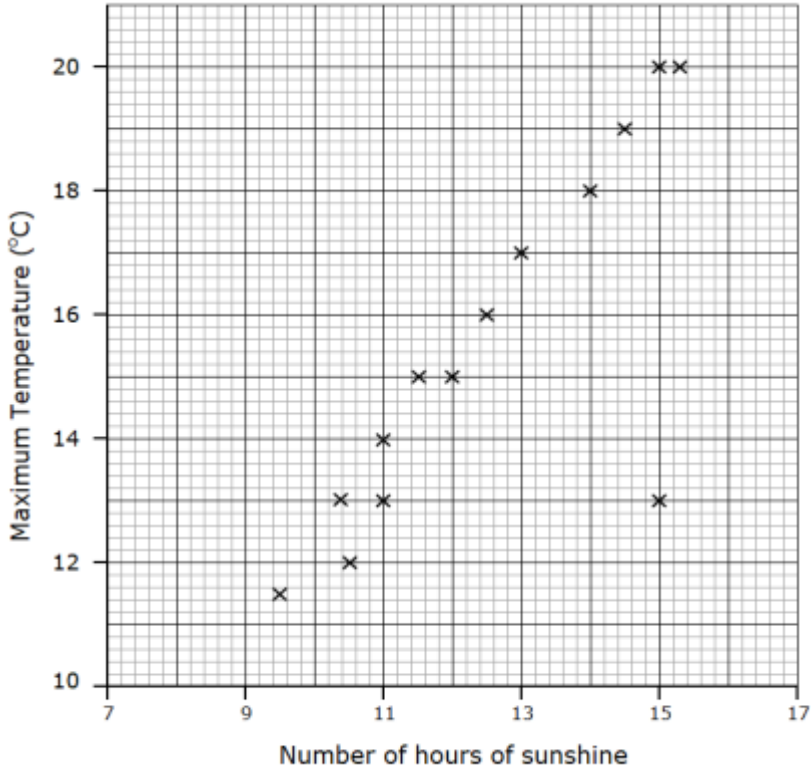
Work out which of the fractions is closer to 1. You must show all your working.

(3)

34 Write down the value of 3⁻²

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

35 The scatter graph shows the maximum temperature and the number of hours of sunshine in fourteen British towns on one day.



One of the points is an outlier.

(a) Write down the coordinates of this point.

(..... ,)
(1)

b) For all the other points write down the type of correlation.

.....
(1)

On the same day, in another British town, the maximum temperature was 14 °C.

(c) Estimate the number of hours of sunshine in this town on this day.
..... hours **(2)**

A weatherman says: "Temperatures are higher on days when there is more sunshine."

(d) Does the scatter graph support what the weatherman says? Give a reason for your answer.
(1)

36 Harry, Regan and Kelan share £360 in the ratio 2 : 3 : 4
How much money does Kelan get?

£..... **(2)**

37 Work out $\frac{0.006 \times 0.0003}{0.001}$

Give your answer in standard form.

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

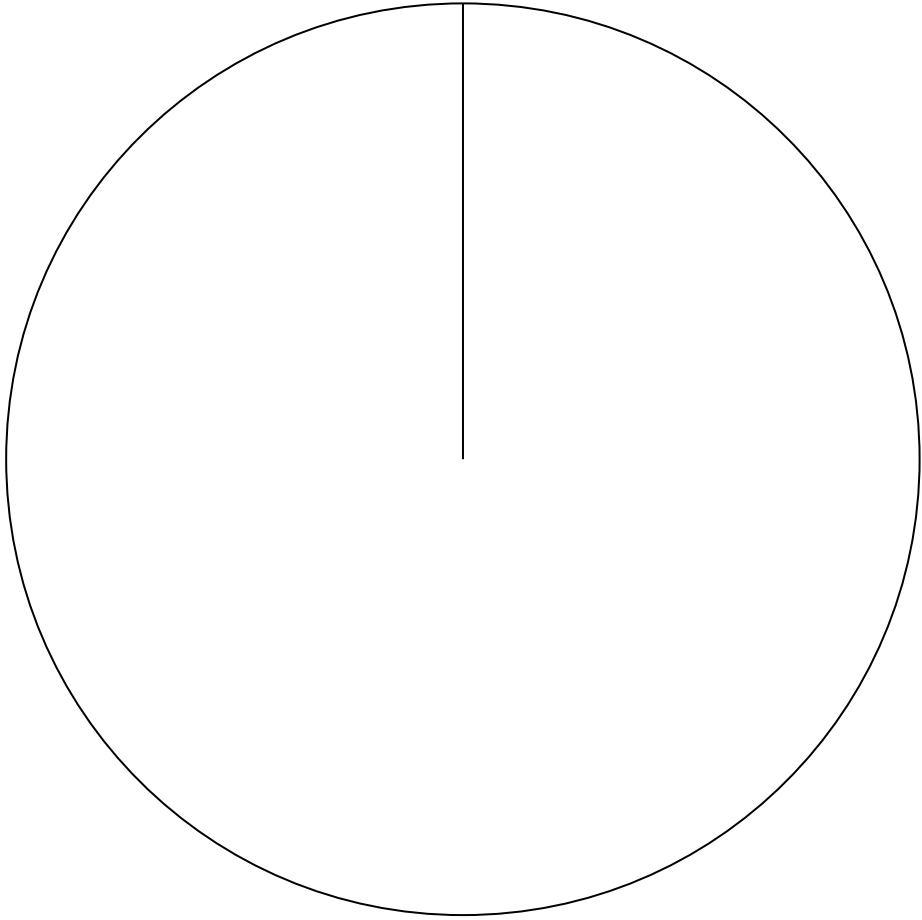
38 Azmol is paid £1600 per month.
He is going to get a 4% increase in the amount of money he is paid.
Work out how much money Azmol will be paid per month after the increase.

£..... **(2)**

39 Year 9 students from Halle School were asked to choose one language to study. The table shows information about their choices.

Language	Number of students	
French	24	
Spanish	40	
German	56	

(a) Draw an accurate pie chart to show this information.



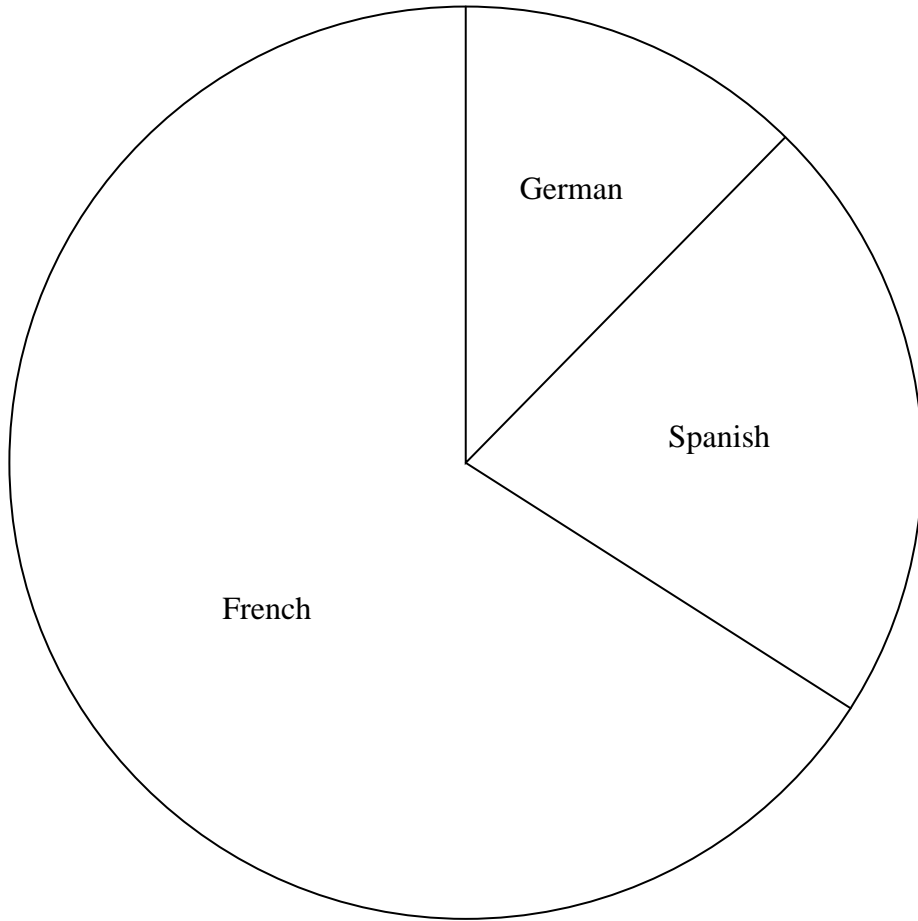
(3)

Year 9 students from Lowry School were also asked to choose one language to study. This accurate pie chart shows information about their choices.

Shameena says,

“The pie chart shows that French was chosen by more Year 9 students at Lowry School than at Halle School.”

(b) Is Shameena right? You must explain your answer.



(1)

40 Berenika wants to buy 25 T-shirts. Each T-shirt costs £5.80.

Berenika does the calculation $30 \times 6 = 180$ to estimate the cost of 25 T-shirts.

(a) Explain how Berenika's calculation shows the actual cost will be less than £180.

(1)

There is a special offer.

(b) Work out the actual cost of buying 25 T-shirts using the special offer.

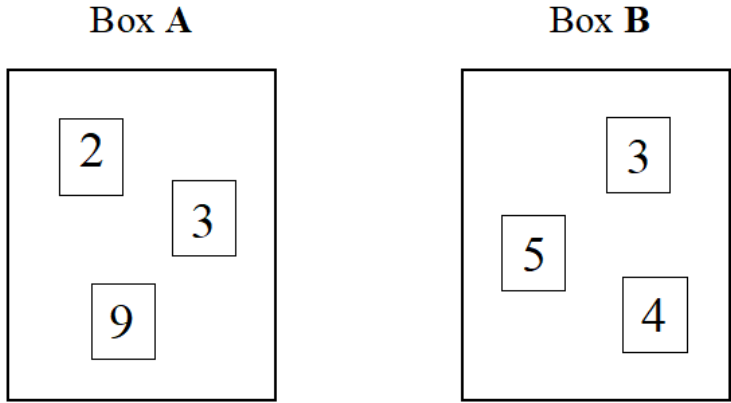
T-shirts £5.80 each
Buy 20 or more T-shirts.
Get 10% of the total

£..... (4)

41 Express 80 as the product of its prime factors.

.....(2)

42 There are 3 cards in Box **A** and 3 cards in Box **B**. There is a number on each card.



Ryan takes at random a card from Box **A** and a card from Box **B**.
 He adds together the numbers on the two cards to get a total score.
 Work out the probability that the total score is an even number.

..... (2)

43 Here is a list of ingredients for making 8 flapjacks.

Ingredients for 8 flapjacks

120 g butter
 140 g brown sugar
 250 g oats
 2 tablespoons syrup

Jenny wants to make 12 flapjacks. Work out how much of each of the ingredients she needs.

Butter
 Brown sugar
 Oats
 Syrup

(3)

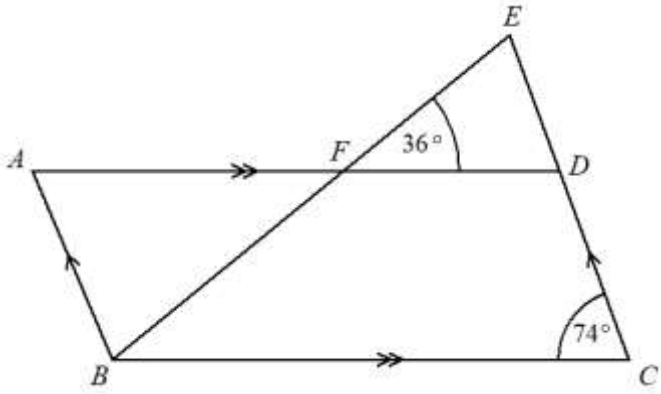
44 Ami and Josh use a calculator to work out $\frac{590}{4.16^2 + 4.8}$
 Ami's answer is 26.69006948
 Josh's answer is 266.9006948
 One of these answers is correct.
 Use approximations to find out which answer is correct.

(3)

45 Kiaria is 8 years older than Jay.
 Martha is twice as old as Kiaria.
 The sum of their three ages is 80.
 Find the ratio of Jay's age to Kiaria's age to Martha's age.

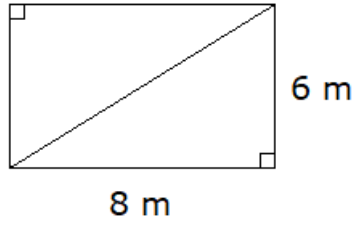
..... (4)

46 $ABCD$ is a parallelogram.
 EDC is a straight line.
 F is the point on AD so that BFE is a straight line.
 Angle $EFD = 36^\circ$
 Angle $DCB = 74^\circ$
 Show that angle $ABF = 70^\circ$
 Give a reason for each stage of your working.



(4)

47 This rectangular frame is made from 5 straight pieces of metal.
 The weight of the metal is 1.5 kg per metre.
 Work out the total weight of the metal in the frame.



..... kg (5)

48 Work out 44.6×7.3

..... (3)

49 In a sale, the normal price of a book is reduced by 30%.
 The sale price of the book is £8.40
 Work out the normal price of the book.

£..... (2)

50 The table shows information about the weekly earnings of 20 people who work in a shop.

Weekly earnings (£x)	Frequency
$150 < x \leq 250$	11
$250 < x \leq 350$	1
$350 < x \leq 450$	0
$450 < x \leq 550$	5
$550 < x \leq 650$	3

(a) Work out an estimate for the mean of the weekly earnings.

£..... (3)

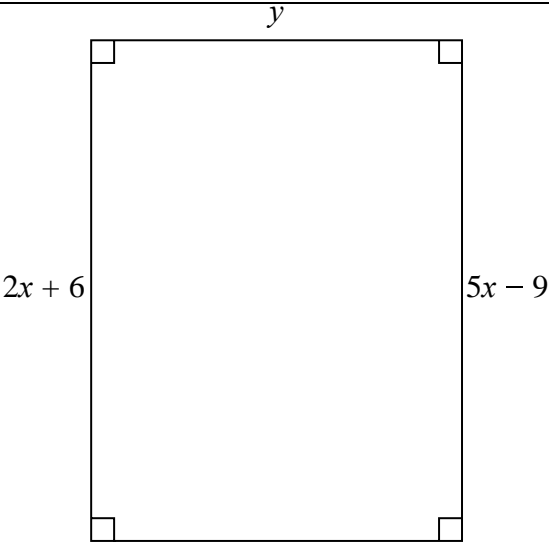
Nadiya says: "The mean may **not** be the best average to use to represent this information."

(b) Do you agree with Nadiya?
You must justify your answer.

(1)

51 Here is a rectangle.

All measurements are in centimetres.
The area of the rectangle is 64 cm^2 .
Show that $y = 4$

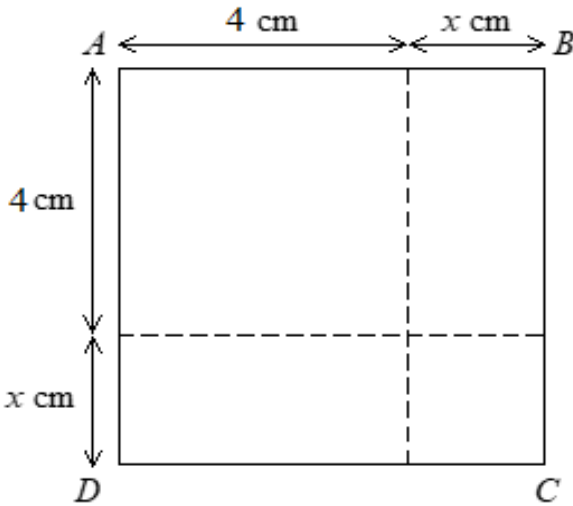


(4)

52 The equation of the line L_1 is $y = 5x - 2$
The equation of the line L_2 is $3y - 15x + 5 = 0$
Show that these two lines are parallel.

(2)

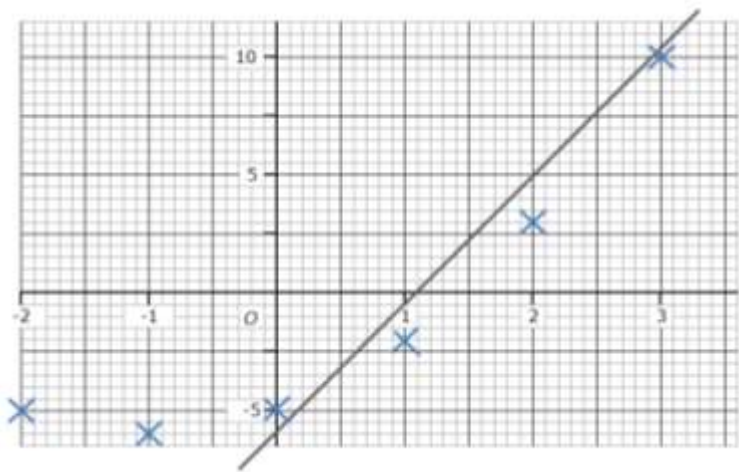
53 The area of square $ABCD$ is 24 cm^2 .
 Show that $x^2 + 8x = 8$



(3)

54 Brogan needs to draw the graph of $y = x^2 + 2x - 5$
 Here is her graph.

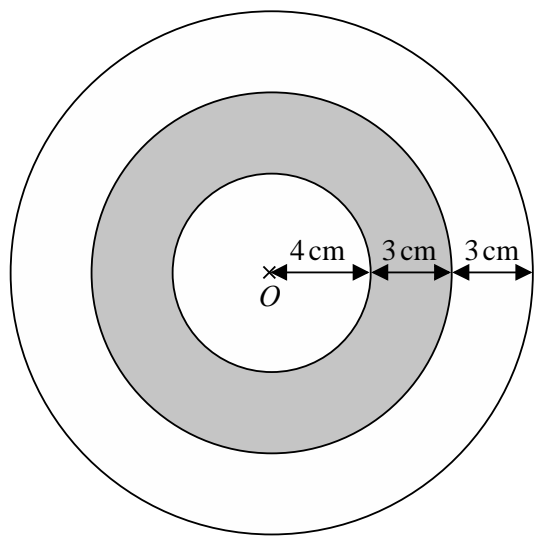
Write down one thing that is wrong with Brogan's graph.



(1)

55 The diagram shows a logo made from three circles.

Each circle has centre O .
 Work out the size of the shaded area.
 Leave your answer in terms of pi.



(4)

END OF QUESTIONS