Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

GCSE MATHEMATICS

F

Foundation Tier Paper 2 Calculator

Thursday 8 June 2017 Morning Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:
- a calculator
- mathematical instruments.

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

Advice
- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26	
TOTAL	

Do not write outside the box

Answer **all** questions in the spaces provided

1 Which unit is most suitable for measuring the length of a tennis court?

Circle your answer.

[1 mark]

kilometres metres centimetres millimetres

2 Circle the multiple of both 8 and 12

[1 mark]

4 32 72 108

3 What is $\frac{3}{2}$ as a decimal?

Circle your answer.

[1 mark]

1.05 1.1 1.5 3.2

Do not write outside the box

4 Circle the correct statement.

[1 mark]

$-4 < -3$ $\quad$ $1 \leqslant -2$ $\quad$ $-6 > 5$ $\quad$ $-1 \geqslant 0$

5 (a) Use your calculator to work out $\sqrt{701}$ as a decimal.

Write down your full calculator display.

[1 mark]

Answer _____

5 (b) Give your answer to part (a) to 1 decimal place.

[1 mark]

Answer _____

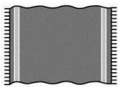
Turn over for the next question

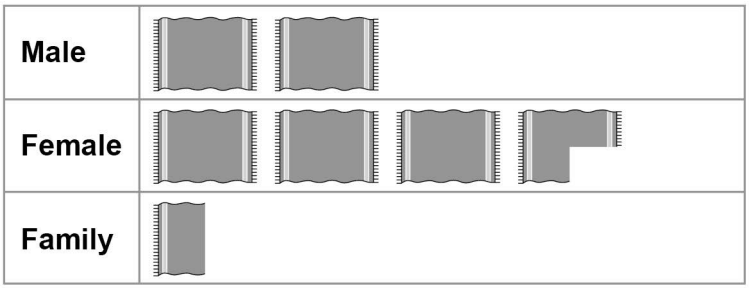
6

Do not write outside the box

6 A swimming pool has three changing rooms, Male, Female and Family.

The pictogram shows the number of people using each changing room during one hour.

Key:  represents _____ people



8 people used the Male changing room.

6 (a) Complete the key.

[1 mark]

6 (b) How many people used the Female changing room?

[1 mark]

_____

_____

_____

Answer _____

Do not write outside the box

6 (c) The manager has bought lockers for the changing rooms.

Why should she **not** use these results to decide where to put them?

[1 mark]

7 Here is a list of numbers.

21 17 23 21 29 32 21 25 36

Work out the median.

[2 marks]

Answer _____

Turn over for the next question

5

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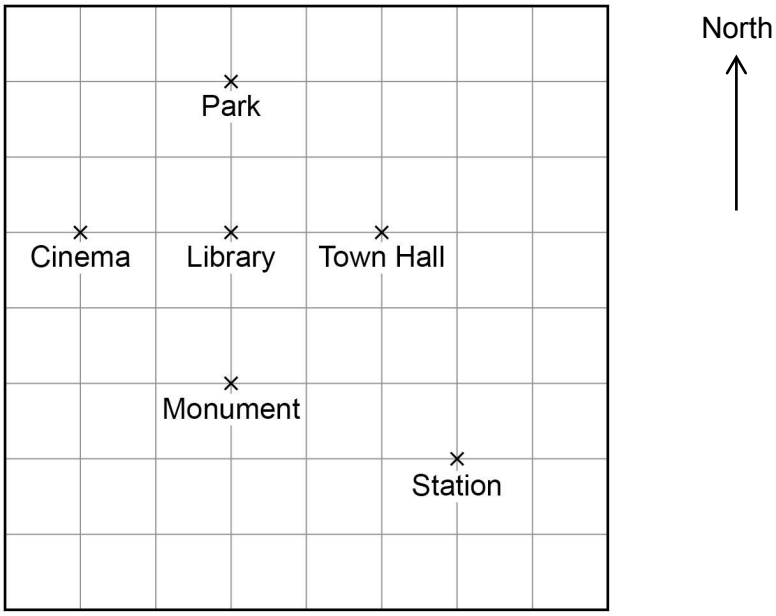
8 Here is a map of a town.

Scale: 1 cm represents 200 m



8 (a) Which place is exactly North West of the Station?
Circle your answer.

[1 mark]

Cinema Town Hall Library Park Monument

8 (b) Circle the three-figure bearing of the Monument from the Park.

[1 mark]

090° 180° 270° 360°

Do not write outside the box

8 (c) What is the distance, in metres, from the Cinema to the Station?

[3 marks]

Answer _____ metres

8 (d) Why might the shortest **walking** distance from the Cinema to the Station be greater than your answer to part (c)?

[1 mark]

Turn over for the next question

6

Do not write outside the box

9 Complete the bank statement.

[2 marks]

Date	Description	Credit (£)	Debit (£)	Balance (£)
13/12/2016	Starting balance			212.48
14/12/2016	Council tax		128.39	_____
15/12/2016	Salary	856.21		_____

Do not write outside the box

10 The average age of teachers at a school is 36 years.

Mr Smith's age is $\frac{11}{9}$ of the average.

How old is Mr Smith?

[2 marks]

Answer _____ years

11 Solve $4x - 3 = 14$

[2 marks]

x = _____

Turn over for the next question

6

Do not write outside the box

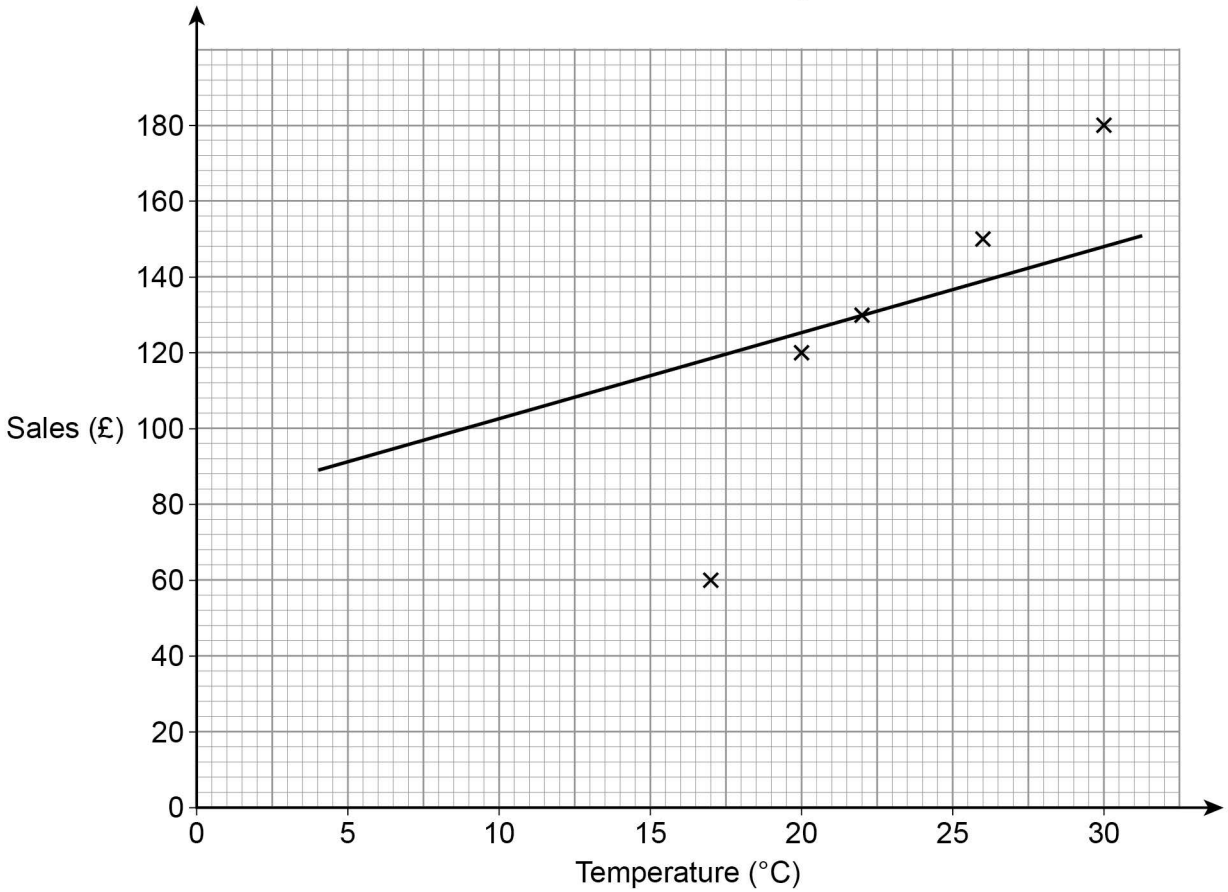
12 Lee sells ice creams.

The table shows the midday temperature and his sales for five days.

	Day 1	**Day 2**	**Day 3**	**Day 4**	**Day 5**
Temperature (°C)	30	26	17	22	20
Sales (£)	180	150	80	130	120

12 (a) He draws this scatter graph and line of best fit.

Ice cream sales and temperature



Write down **two** mistakes he has made.

[2 marks]

Mistake 1 _____

_____

Mistake 2 _____

_____

Do not write outside the box

12 (b) Lee wants to work out the range of the five temperatures.

His calculation is 30 – 20 = 10

Is his method correct?

Tick a box.

[1 mark]

Yes ☐ No ☐

Give a reason to support your answer.

12 (c) The table shows Lee's costs.

Ingredients	15% of sales
Fuel	£7 per day

Work out his total profit for the five days.

[5 marks]

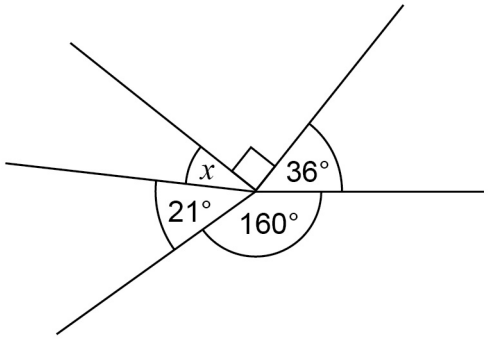
Answer £ _____

8

Turn over ►

Do not write outside the box

13



Not drawn accurately

Work out the size of angle x.

[2 marks]

Answer _____ degrees

Do not write outside the box

14 In this question, use

1 kilogram = 2.2 pounds

1 stone = 14 pounds

Change 70 kilograms into stones.

[3 marks]

Answer _____ stones

15 Here are some numbers.

10 13 15 20 27 39

10 15 20 is an arithmetic progression.

Use **three** of the numbers to make a different arithmetic progression.

Describe the rule.

[2 marks]

Answer _____ _____ _____

Rule _____

7

Do not write outside the box

16 The counters in a bag are red or blue.

One fifth of the counters are red.

Work out the ratio red counters : blue counters

Circle your answer.

[1 mark]

1 : 4 1 : 5 4 : 5 1 : 6

17 Circle the fraction equal to 0.1%

[1 mark]

$\frac{1}{10}$ $\frac{1}{100}$ $\frac{1}{1000}$ $\frac{1}{10\,000}$

Do not write outside the box

18 Ellen works for a company that sells cars.

Her **monthly** pay is

- a salary of £1470
- 28% of the total **profit** the company makes from her sales
- a £250 bonus **if** she sells at least 15 cars.

The table shows information about the cars she sold last year.

Total cost to the company	Total income for the company	Number of months when she sold at least 15 cars
£464 500	£538 000	3

Was Ellen's total pay for the **year** more than £40 000?

You **must** show your working.

[6 marks]

Answer _____

8

Turn over ►

Do not write outside the box

19 Ben and Katy throw darts at a target.

Ben's ratio of hits to misses is 5 : 1

Katy's ratio of hits to misses is 3 : 1

Ben says,

"5 is bigger than 3, so I must have more hits than Katy."

Give an example to show that this might **not** be true.

[2 marks]

Do not write outside the box

20 A code has 4 digits.

Each digit is a number from 0 to 9

Digits may be repeated.

The code starts 5 4 1

5	4	1	

20 (a) Joe chooses a number at random for the last digit.

Write down the probability that he chooses the correct number.

[1 mark]

Answer _____

20 (b) Amy knows the last digit is odd but **not** 7

She chooses a different odd number at random.

What is the probability that she chooses the correct number?

[1 mark]

Answer _____

Turn over for the next question

4

Do not write outside the box

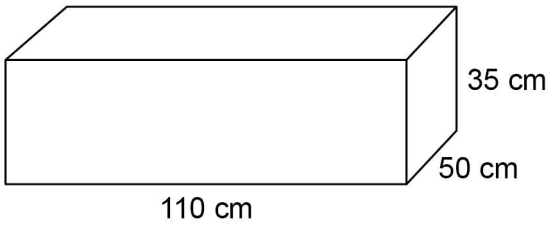
21 Eva thinks she can save water by having a shower instead of a bath.

Eva's shower

uses 10.8 litres per minute

lasts for 8 minutes.

Eva assumes that the water in her bath is in the shape of this cuboid.



1000 cm^3 = 1 litre

21 (a) Using Eva's assumption, work out how many litres of water she saves by having a shower instead of a bath.

[5 marks]

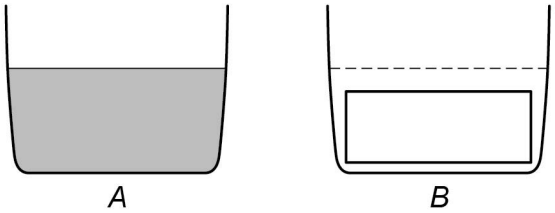
Answer _____ litres

Do not write outside the box

21 (b) *A* shows the water level before Eva gets into the bath.

B shows the cuboid in the empty bath.

Not drawn accurately



What does this tell you about the amount of water saved?

[1 mark]

Turn over for the next question

6

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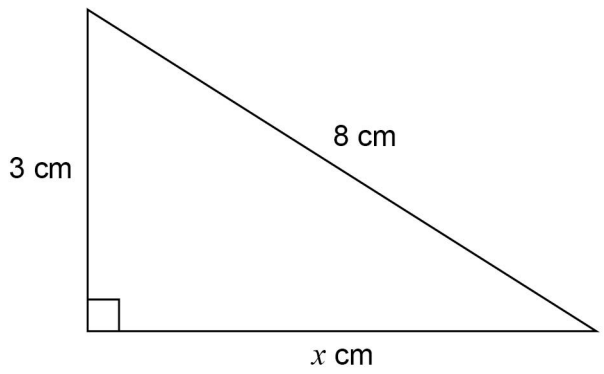
22



Not drawn accurately

Work out the value of x as a decimal.

[3 marks]

Answer _____

Do not write outside the box

23 Lily goes on a car journey.

For the first 30 minutes her average speed is 40 miles per hour.

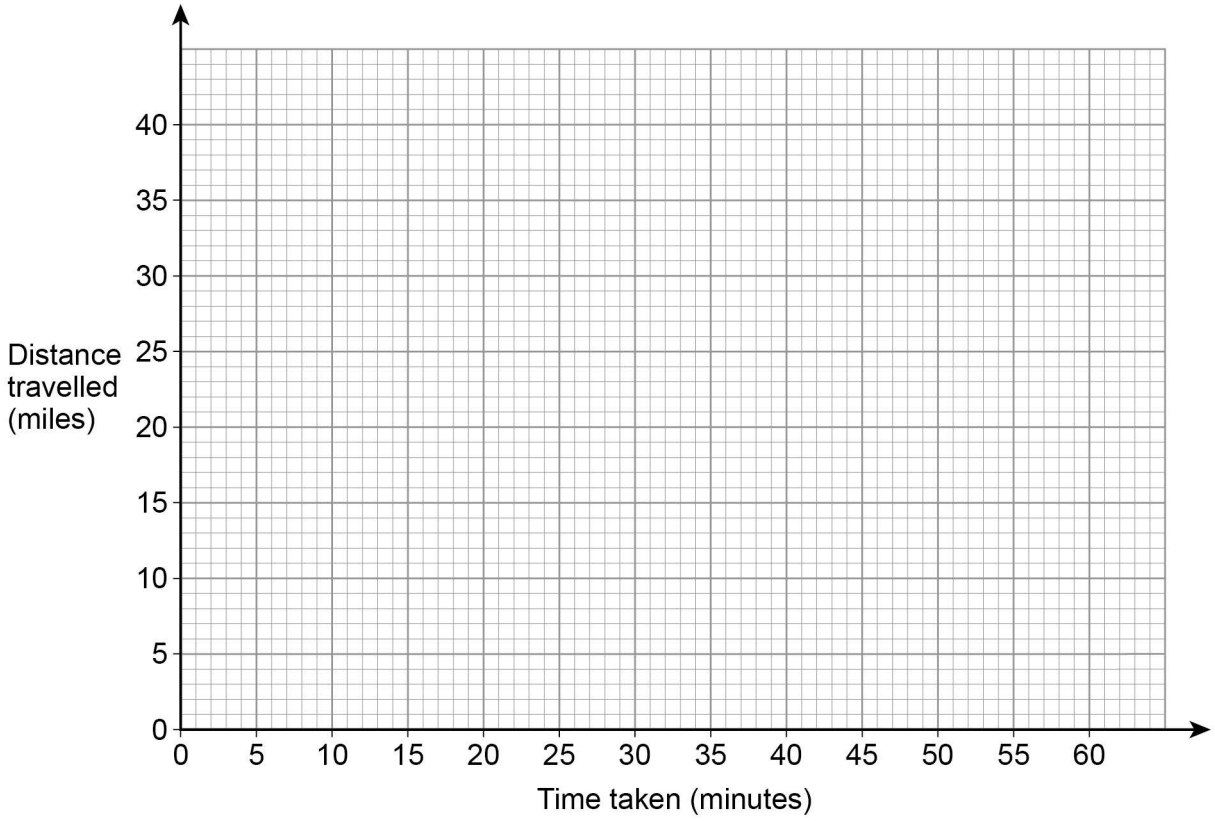
She then stops for 15 minutes.

She then completes the journey at an average speed of 60 miles per hour.

The total journey time is 1 hour.

23 (a) Draw a distance-time graph for her journey.

[3 marks]



23 (b) Write down the average speed for the total journey.

[1 mark]

Answer _____ mph

Turn over for the next question

7

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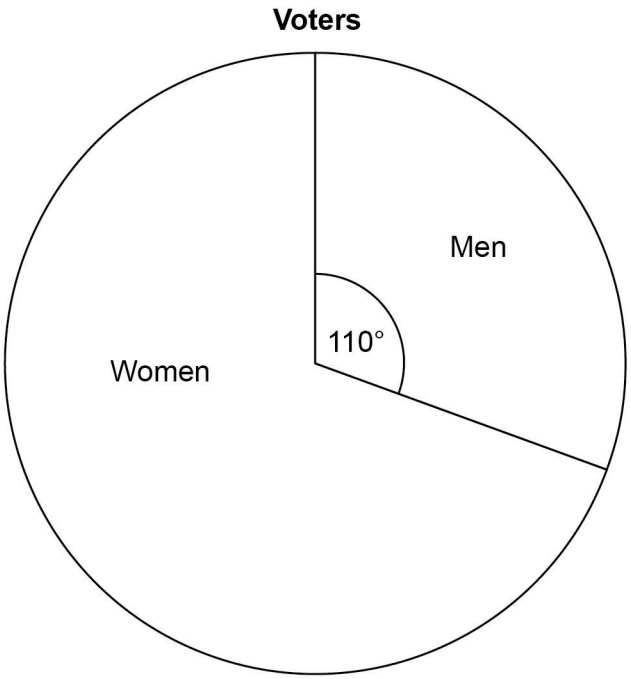
24 The pie chart shows information about voters in an election.



3360 **more** women voted than men.

Work out the total number of voters.

[3 marks]

Answer _____

Do not write outside the box

25 The table shows information about some CDs.

Type	Rock	Pop	Jazz
Number of CDs	2	x	$2x + 5$

A CD is chosen at random.

The probability it is **rock** is $\frac{1}{20}$

Work out the probability it is jazz.

[4 marks]

Answer _____

Turn over for the next question

7

Do not write outside the box

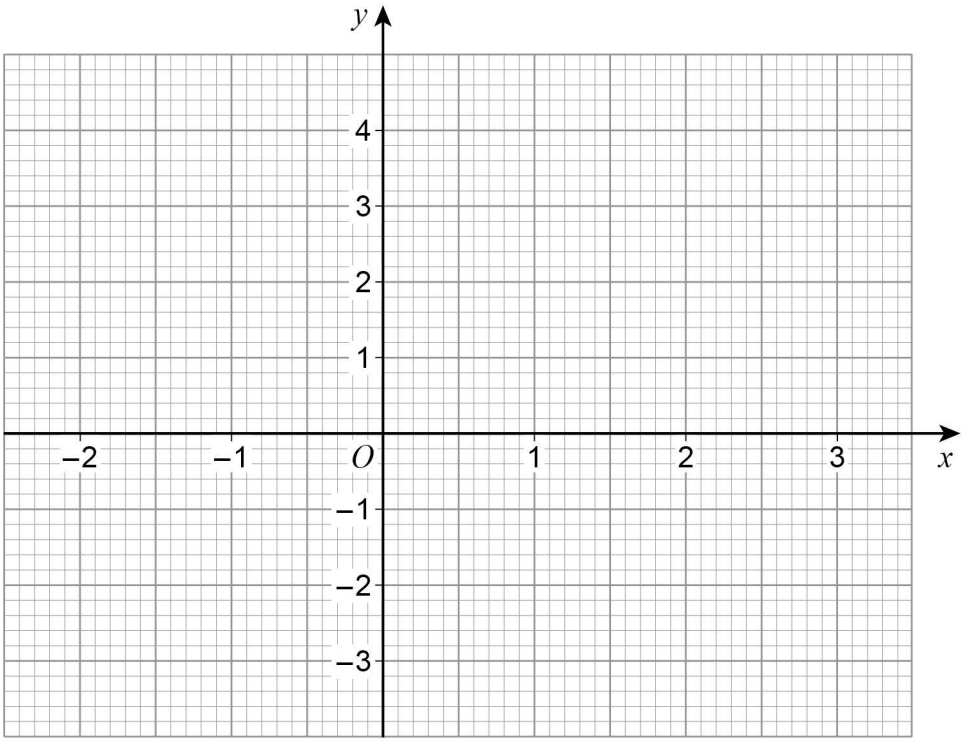
26 (a) Complete the table of values for $y = x^2 - x - 2$

[2 marks]

x	–2	–1	0	1	2	3
y			–2	–2		4

26 (b) Draw the graph of $y = x^2 - x - 2$ for values of x from –2 to 3

[2 marks]



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27 Write these numbers in **descending** order.

9563 9.56×10^3 9.56×3^{10}

[2 marks]

Answer _____ , _____ , _____

28 Rearrange $y = \frac{x}{3} + 9$ to make x the subject.

[2 marks]

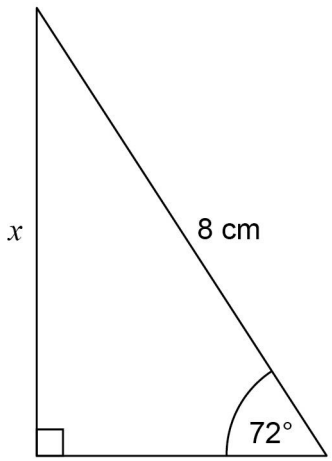
Answer _____

Turn over for the next question

8

Do not write outside the box

29 Use trigonometry to work out the length x.



Not drawn accurately

[2 marks]

Answer _____ cm

END OF QUESTIONS

2

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