GCSE

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4352/01

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S16-4352-01

MATHEMATICS (UNITISED SCHEME)
UNIT 2: Non-calculator Mathematics
FOUNDATION TIER

A.M. THURSDAY, 9 June 2016

1 hour 15 minutes

CALCULATORS ARE
NOT TO BE USED
FOR THIS PAPER

ADDITIONAL MATERIALS

A ruler, a protractor and a pair of compasses may be required.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

Take π as 3·14.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **4**.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	6	
2.	5	
3.	7	
4.	7	
5.	3	
6.	3	
7.	2	
8.	3	
9.	4	
10.	2	
11.	4	
12.	3	
13.	3	
14.	3	
15.	4	
16.	6	
Total	65	

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Formula List

Area of trapezium $= \frac{1}{2}(a + b)h$
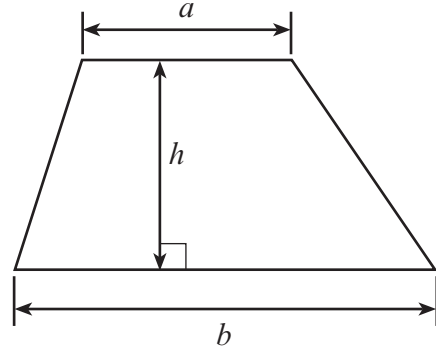
Volume of prism = area of cross-section × length

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Examiner
only

1. *(a)* Subtract 98 from 600. [1]

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(b) Write down the number that is one-half of 430. [1]

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(c) Chester Station is on the railway line between Holyhead and London.
At this station there is the following sign:

⟶	LONDON	179 miles
⟵	HOLYHEAD	85 miles
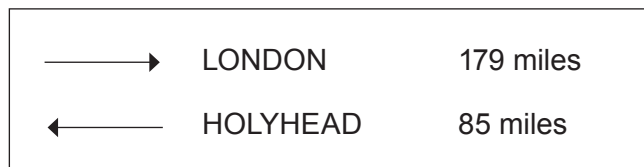
What is the total distance from Holyhead to London along this railway line? [1]

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(d) Using only numbers between 40 and 50, write down

(i) a square number, [1]

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(ii) a multiple of 9. [1]

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(e) Write 8652 correct to the nearest 100. [1]

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2. *(a)* (i)   In the space below, draw a quadrilateral with exactly one pair of parallel sides.   [1]

(ii)   Write down the special name of this quadrilateral.   [1]

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(b) (i)   On the set of axes below, plot the points (2, 1), (6, 2) and (7, 5).   [2]

(ii)   These points are three vertices of a parallelogram.
The *x*-coordinate of the fourth vertex lies between 0 and 5 and its
y-coordinate is positive.

Draw the parallelogram.   [1]

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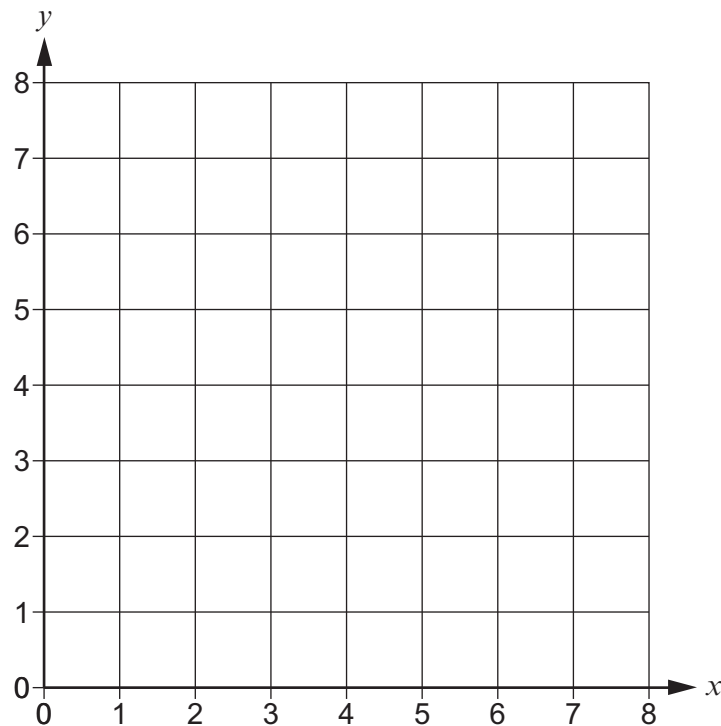
3. *(a)* Solve these equations.

(i) $5x = 105$ [1]

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(ii) $x - 19 = 32$ [1]

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(b) Simplify $14g - 11g + 5g$. [1]

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(c) Describe **in words** a rule for continuing **each** of the following sequences.

(i) 0, 16, 32, 48, … [1]

Rule: ....

....

(ii) 1000, 500, 250, 125, … [1]

Rule: ....

....

(d) (i) Susie bought h books.
Susie then bought 6 more books.
How many books did she buy altogether? [1]

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(ii) Last year, Osian grew m potatoes.
This year, Osian grew one third of that amount.
How many potatoes did he grow this year? [1]

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4. *You will be assessed on the quality of your written communication in this question.*

Mari wanted to do some decorating.

The table below shows the cost of paint and paintbrushes in a local shop.

Size	Paint Cost of 1 tin	Paintbrushes Cost of 1 brush
Large	£17	£9
Small	£6	£3.50

Mari bought 5 large tins of paint and 2 small tins of paint.

She also bought 4 large paintbrushes and 3 small paintbrushes.

Work out the total amount of money that Mari spent.

You must show all your working. [7]

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5. Ian works in a bakery.
He is making some cakes.
He has a table showing the ingredients for different quantities of cakes.

Fill in the spaces in the table. [3]

Ingredient	1 cake	.... cakes
flour	200 g	.... kg
butter	.... g	0·4 kg
sugar	150 g	1·2 kg
eggs	2	16

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6. Calculate the exact angle between the hour hand and the minute hand on a clock when the time is 5 p.m.
You must show your working. [3]

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7. Ceinwen spends 45% of her income on rent.
If she earns £300 each week, how much rent does she pay each week? [2]

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8. Kadir has **four** of the following cards.

32	15	24	12
19	28	15	46

If one card is chosen at random **from his four cards**, the following conditions are satisfied:

• it is **certain** that the number chosen is less than 32,

• it is **unlikely** that the number chosen is 15,

• it is **likely** that the number chosen is greater than 17.
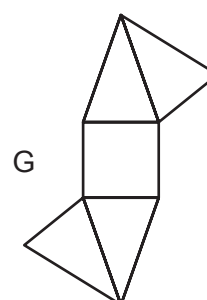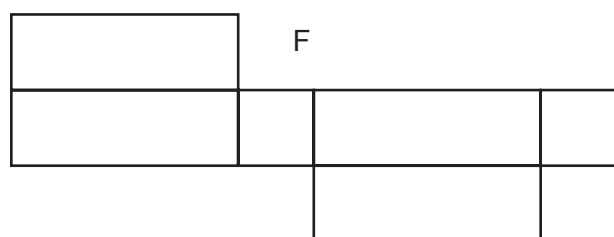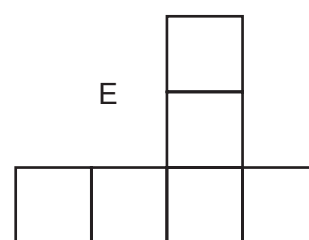
Which four cards does Kadir have? [3]

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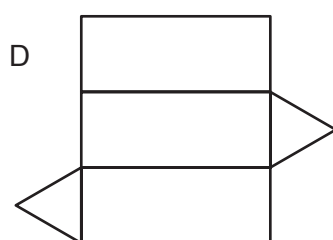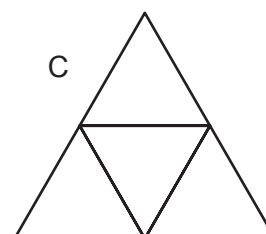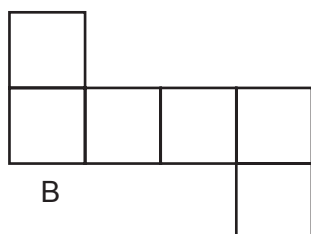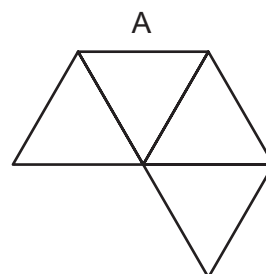
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9. Complete the table below to match each 3-dimensional shape with its correct net.
One has been done for you. [4]

3-dimensional shape	Net
cube	B
cuboid	
triangular prism	
square-based pyramid	
tetrahedron	

A

C

B

D

E

F

G

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10. Sindhu has a bag of different coloured counters.
The colours of the counters are blue, yellow, red or orange.
Sindhu picks a counter at random from her bag.
The probability that she chooses a counter of each colour is given in this table.
What is the probability that Sindhu chooses a red counter?
Write your answer in the table. [2]

Colour of counter	blue	yellow	red	orange
Probability	0·3	0·25	....	0·4

11. *(a)* Work out the value of $7^2 - 2^3$. [2]

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(b) Simplify $\dfrac{4}{7} + \dfrac{1}{14}$. [2]

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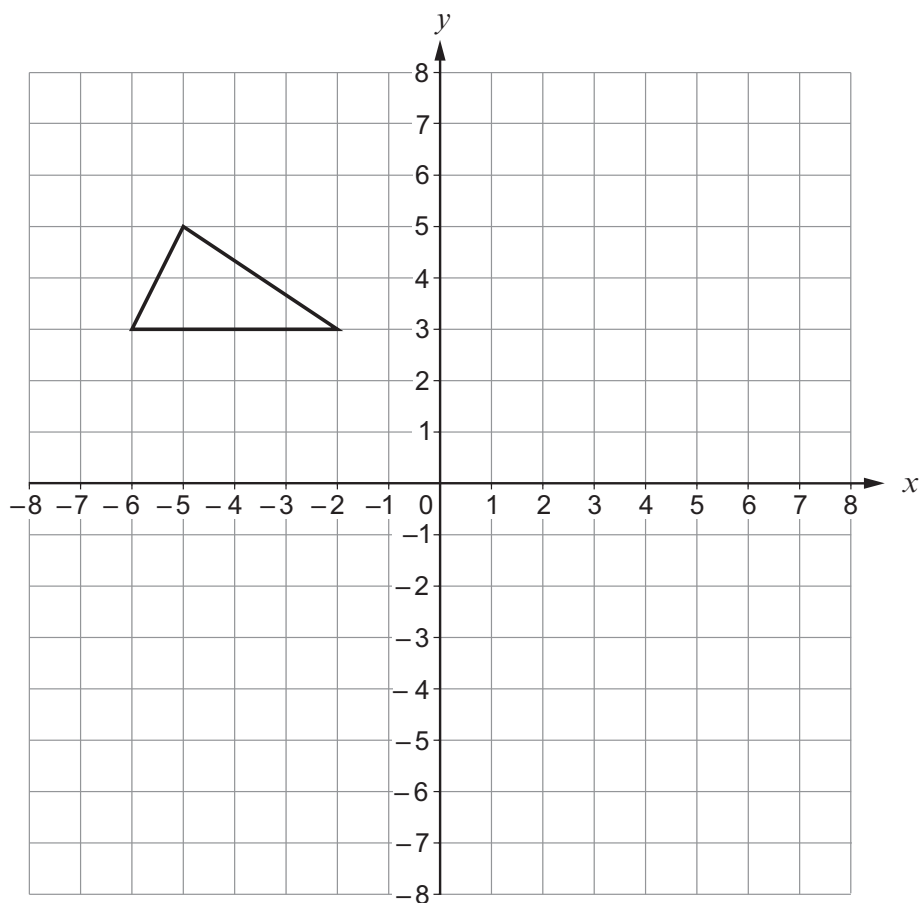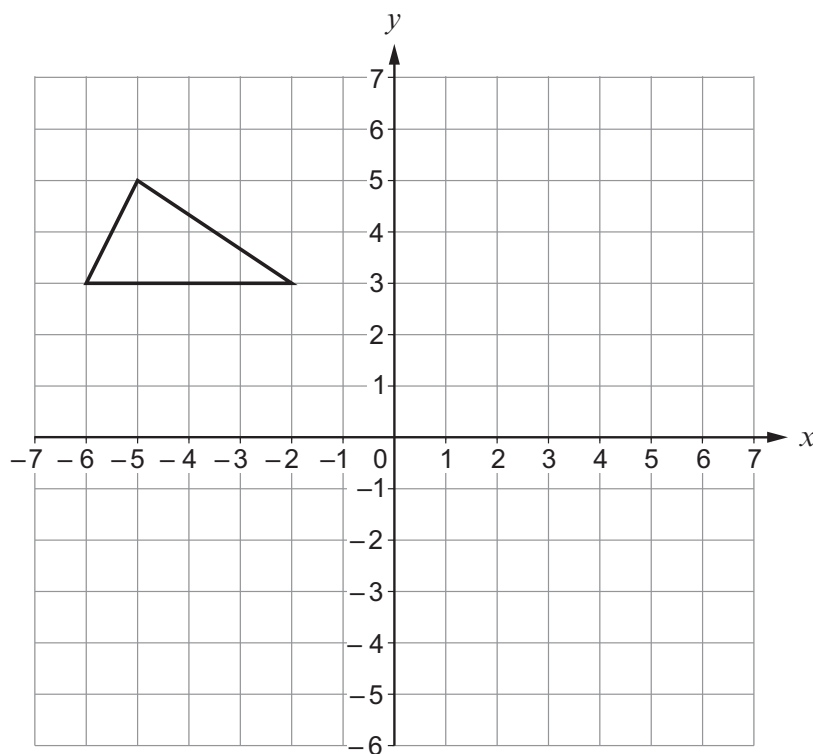**12.** *(a)* Rotate the triangle shown through 90° anticlockwise about the point (0, 2).   [2]

(b) Translate the triangle shown 5 units to the right and 2 units down.   [1]

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13. In the following diagram, lines *DB* and *EA* are parallel and *CDF* is an isosceles triangle.
Find the size of angle *y*. [3]
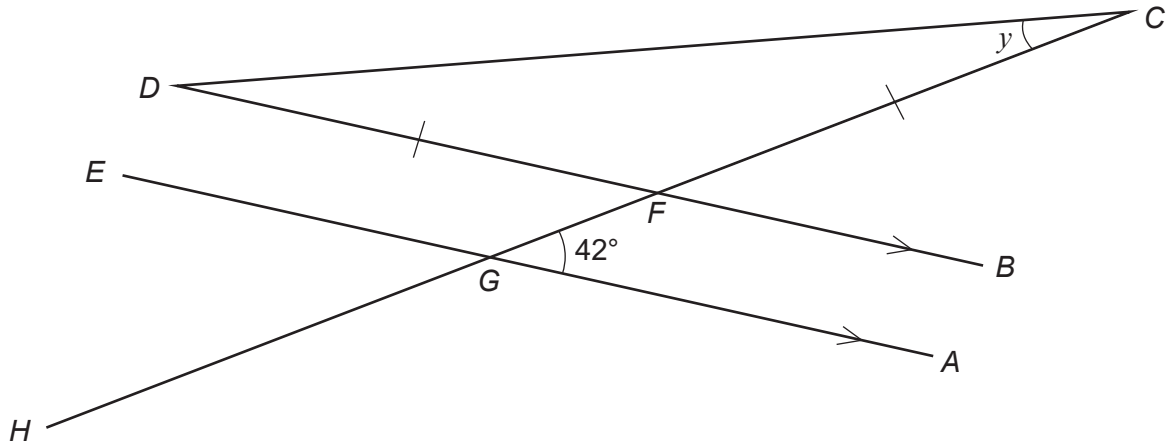
Diagram not drawn to scale

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y = ... °

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14. Solve the equation $5x + 7 = 9 + 2x$. [3]

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15. Tax is charged by councils on houses in their area to pay for many local services. This is called council tax.

The council tax for Alun's house is £1200 per year, provided 2 or more people share the house.

If only one person lives in the house, the council tax is reduced by 25%.

Alun lived in the house on his own.

If Ben had moved into the house with Alun, they would have shared the cost of the council tax equally.

What would have been the percentage reduction in the cost of the council tax for Alun if Ben had moved in?

You must show all your working. [4]

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16. Katie is a netball player. She claims that, if she stands a distance of 2 metres from the goal post, there is a probability of at least 70% that she will score a goal with any throw.

Lloyd, her brother, challenges her to prove this by throwing 6 sets of 10 balls from this distance. Katie's results are given in the following table.

Number of throws	10	10	10	10	10	10
Number of goals	5	7	6	10	8	9

Lloyd then creates a table to show the cumulative number of goals and to calculate the relative frequencies.

Total number of throws	10	20	30	40	50	60
Total number of goals	5	12	18			
Relative frequency of scoring a goal	$\frac{5}{10}$	$\frac{12}{20}$	$\frac{18}{30}$			
	0·5	0·6	0·6			

(a) Complete the table above. [3]

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(b) Draw a graph to show the relative frequency of scoring a goal. [2]

Relative frequency
of scoring a goal

1·0

0·8

0·6

0·4

0·2

0

0   10   20   30   40   50   60

Total number
of balls thrown
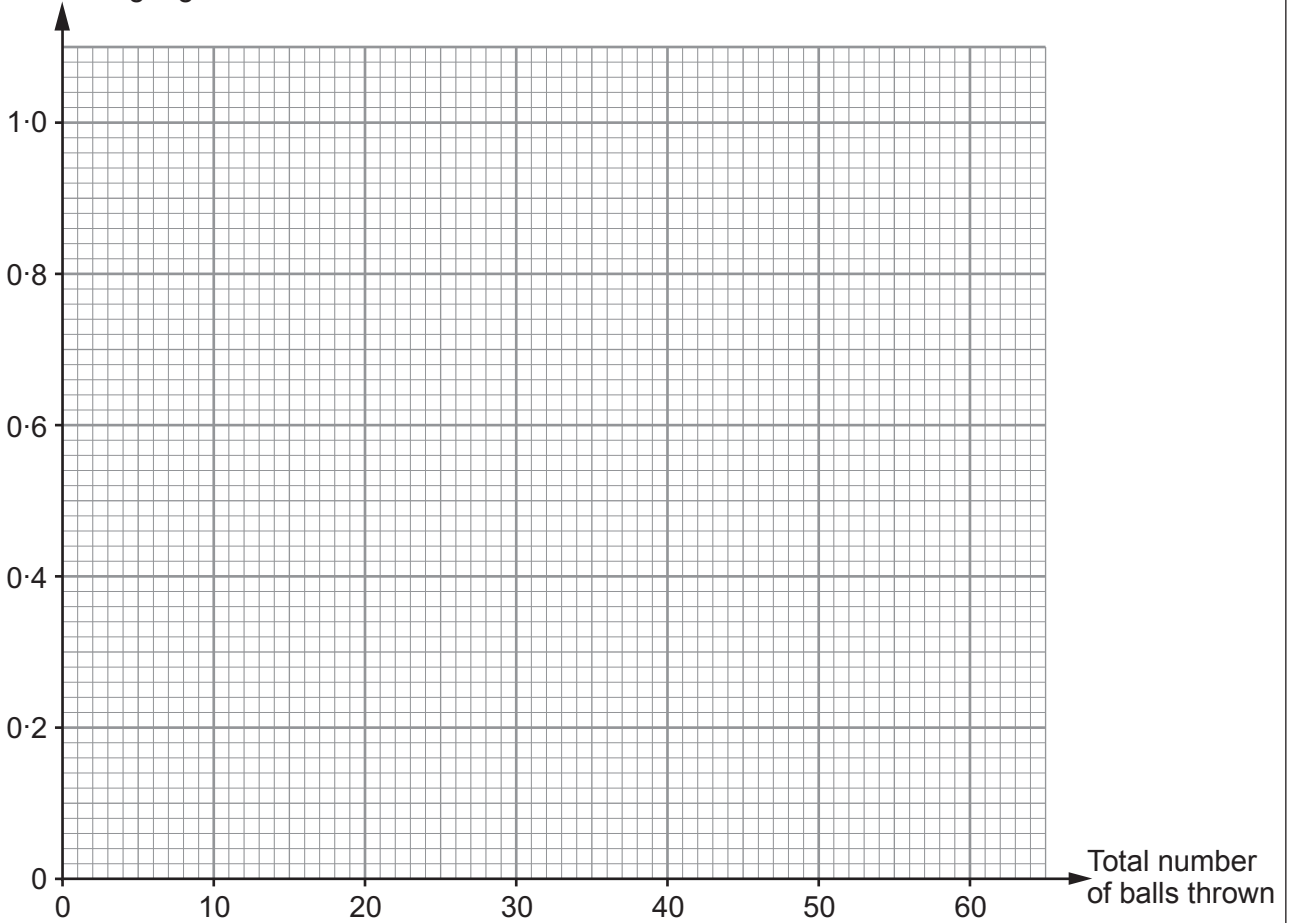
(c) Is Katie correct to claim that the probability that she scores a goal from this distance is at least 70%?
Explain your answer. [1]

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