Surname		Centre Number	Candidate Number
Other Names			0

GCSE

4353/01

MATHEMATICS (UNITISED SCHEME)
UNIT 3: Calculator-Allowed Mathematics
FOUNDATION TIER

A.M. TUESDAY, 17 June 2014

1 hour 30 minutes

ADDITIONAL MATERIALS

A calculator will be required for this paper.

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 or use the π button on your calculator.

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 **6**.

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	6	
2.	3	
3.	2	
4.	5	
5.	6	
6.	6	
7.	1	
8.	10	
9.	5	
10.	5	
11.	3	
12.	5	
13.	5	
14.	3	
15.	2	
16.	4	
17.	2	
18.	3	
19.	4	
Total	80	

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Formula List

Area of trapezium $= \frac{1}{2}(a + b)h$
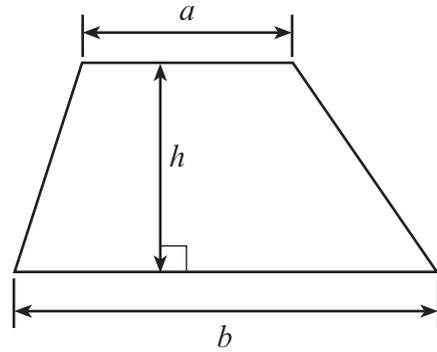
Volume of prism = area of cross-section × length
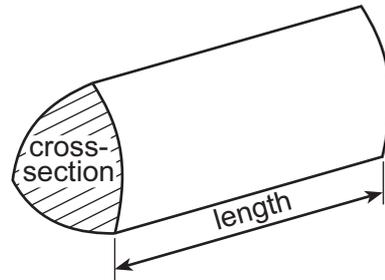
1. *(a)* Barry works in a restaurant and he is paid different rates of pay depending on the days he works.

Complete the summary of his earnings for last week. [4]

Days worked	Hours worked	Rate of pay	Earnings
Monday to Friday	16 hours	£6 per hour	£
Saturday	5 hours	£6.84 per hour	£
Sunday	2 hours	£7.40 per hour	£
		Total	£

(b) Barry is paid 5% of his total week's earnings as a bonus.

How much was Barry paid as a bonus last week? [2]

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2. Write 457·832

(a) correct to 1 decimal place, [1]

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(b) correct to the nearest whole number, [1]

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(c) correct to the nearest hundred. [1]

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3. Use the formula $M = 4A - 6B$ to find the value of M when $A = 8$ and $B = 3$. [2]

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4. Some shapes are drawn on 1 cm squared paper.
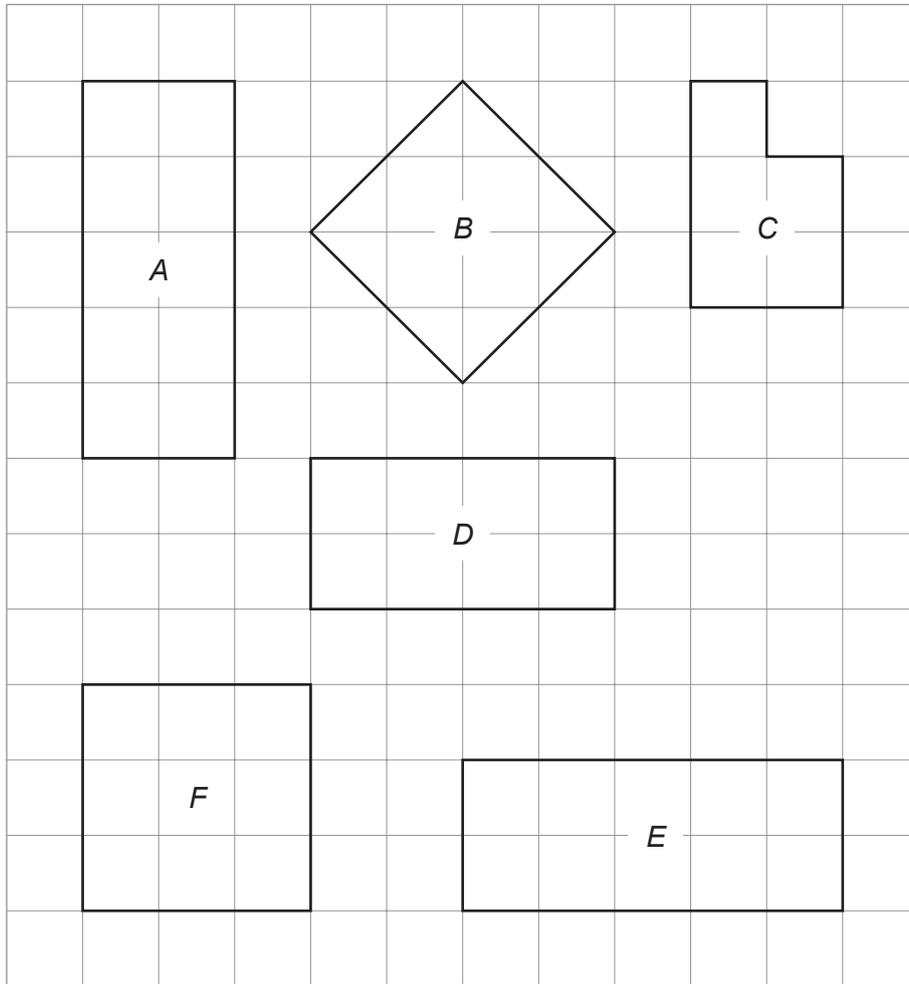
(a) Which shape is congruent to shape *A*? [1]

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(b) Which **two** shapes are similar but not congruent? [1]

....

(c) Which shape has half the area of shape *E*? [1]

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(d) (i) Find the perimeter of shape *F*. [1]

Perimeter = ... cm

(ii) Which shape has the same perimeter as shape *F*? [1]

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5. A jar contains a total of 24 marbles.

- The marbles are only red, yellow, blue or green.
- There are 8 red marbles.
- The number of yellow marbles is half the number of red marbles.
- There is an equal number of blue and green marbles.

(a) Use this information to fill in the table. [2]

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Colour of marbles	Red	Yellow	Blue	Green
Number of marbles	8			

(b) Draw a bar chart to show the number of red, yellow, blue and green marbles in the jar. [4]

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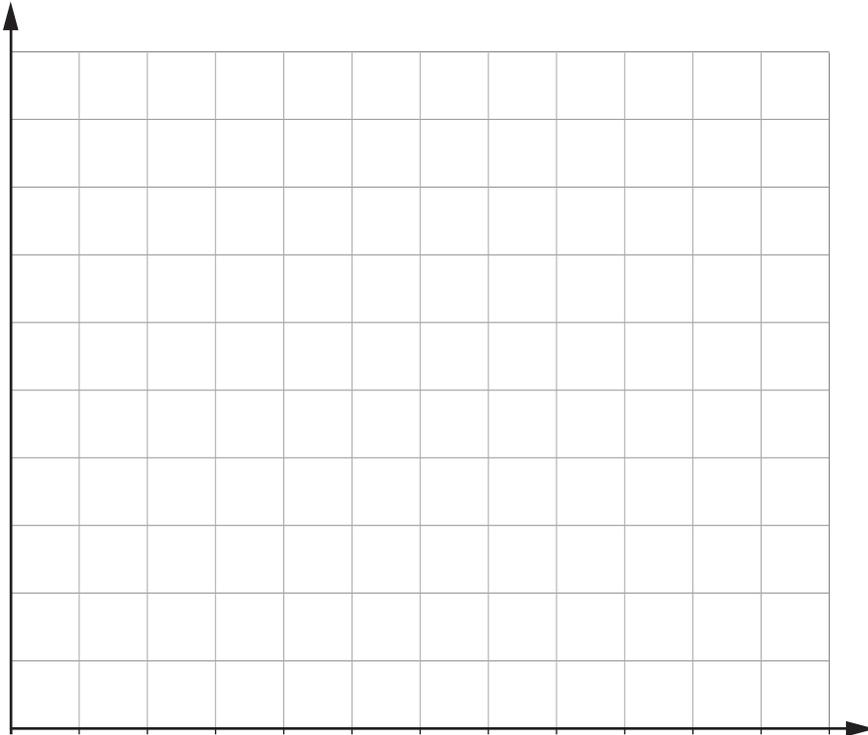
6. *You will be assessed on the quality of your written communication in this question.*

Jane has £15 to spend on buying packets of biscuits.
A packet of biscuits costs 89p.

She buys as many packets of biscuits as possible.

How many packets of biscuits does she buy and what change does she receive?
Show all your working. [6]

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7. Draw a circle with its centre at *C* that passes through the points *A* and *B*. [1]

A •————————————•————————————• *B*

                    C
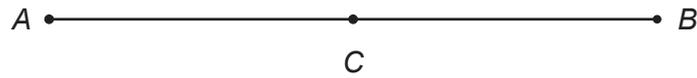
8. *(a)* The table shows the minimum temperature recorded on 1ˢᵗ December in seven cities around the world.

City	Berlin	Calgary	Cardiff	Delhi	Milan	Moscow	New York
Temperature (°C)	0	–39	11	42	11	1	–5

(i) What is the difference in temperature between the warmest and coldest cities? [2]

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(ii) What is the median temperature recorded? [2]

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(b) The table shows the midday temperature readings that were recorded in Cardiff on the first day of each month.

Month	Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
Temperature (°C)	1	4	2	7	11	16	17	21	19	10	7	11

(i) Find the mean and range of these temperature readings and complete the table below. [4]

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	Cardiff	Paris
Mean midday temperature (°C)		15·8
Range of midday temperatures (°C)		29

(ii) Midday temperature readings were also recorded on the first day of each month in Paris.

The mean was found to be 15·8°C and the range was 29°C.

Use the mean and range to compare the temperatures recorded in Cardiff and Paris. [2]

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(4353-01) **Turn over.**

9. *(a)* Complete an accurate drawing of triangle XYZ in which $XY = 8\,cm$, $Y\hat{X}Z = 98°$ and $X\hat{Y}Z = 40°$. The line XY has been drawn for you. [3]

X ——————————————————— Y

(b) Using a ruler and a pair of compasses, construct the perpendicular bisector of the line *PQ*. [2]

P ——————————————— Q

10. Each diagram represents a balance with the total weight on each side being equal.
Find the values of *A*, *B* and *C*. [5]

| *A* | 6 | | 15 |

| *B* | *B* | *B* | | *B* | 14 |

| *C* | 8 | | *A* | *B* | 3 |

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A = ...   *B* = ...   *C* = ...

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Turn over.
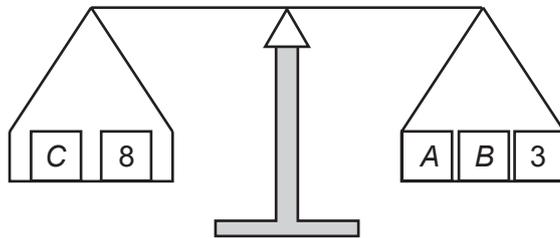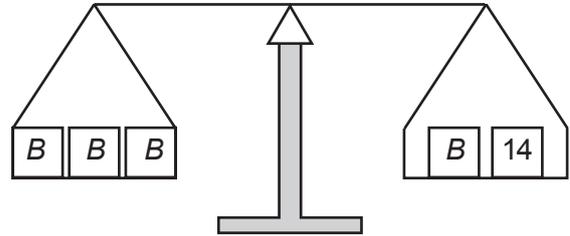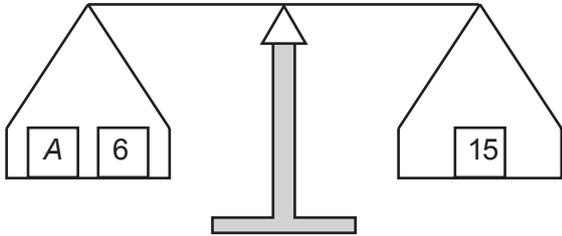
11. A jug holds one and a half litres of water when full.

A tank has dimensions 25 cm by 24 cm by 20 cm.

24 cm

20 cm

25 cm
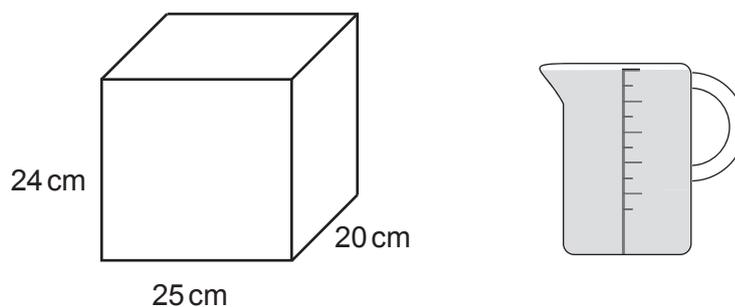
Diagram not drawn to scale

How many full jugs of water will it take to fill the tank? [3]

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12. *(a)* Solve $3x + 4 = 25$. [2]

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(b) Given that $P = \frac{1}{2}Q + 5R$, find R when $P = 75$ and $Q = 50$. [3]

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13. Mr Jones pays for his gas by 12 **equal** monthly payments.
Each monthly payment is worked out using the following information.

- Mr Jones uses 15 000 units of gas in a year.
- The cost of gas is 4.028 pence per unit used.
- There is a fixed charge of £6.98 **per month**.
- There is a discount of £48 per year.

Calculate Mr Jones's **monthly payment**. [5]
You must show all your working.
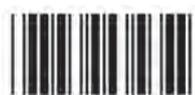
14. The scatter diagram shows the values and ages of cars of a particular model.
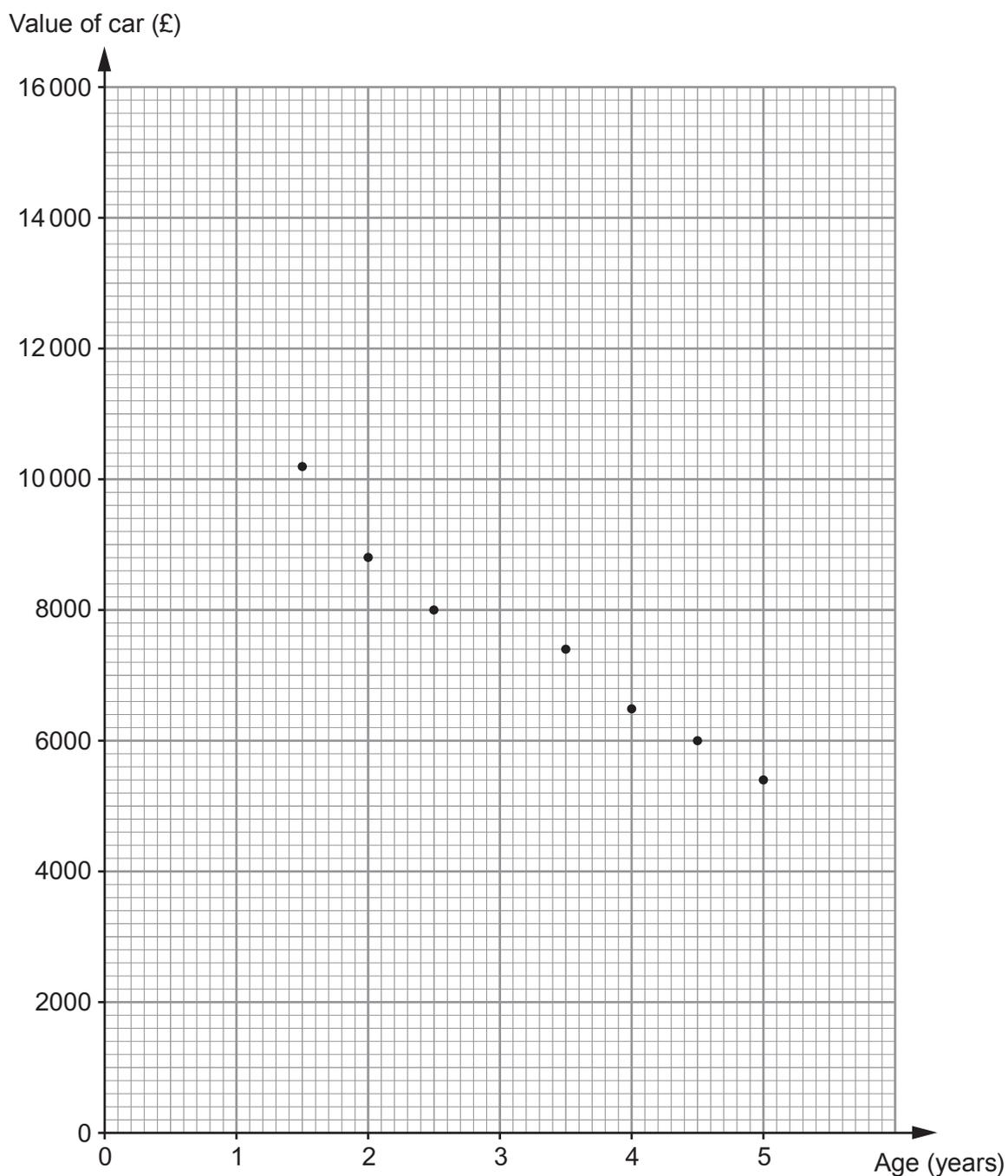
(a) Write down the value of the oldest car. [1]

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(b) Draw, by eye, a line of best fit on the scatter diagram. [1]

(c) Use your line of best fit to estimate the value of a 3-year-old car of this model. [1]

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15. Evaluate $\dfrac{\sqrt[3]{90}}{10{\cdot}5 - 7{\cdot}74}$. Give your answer correct to 2 decimal places. [2]

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16. Two brothers, Gethin and David, share a sum of money in the ratio $2:7$.
David gets £30 more than Gethin. Calculate how much money the brothers share. [4]

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(4353-01)   **Turn over.**

17. The diagram below shows part of a regular polygon.
Calculate the number of sides of this regular polygon. [2]

45°

Diagram not drawn to scale

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18. Solve the equation $3(x - 2) = x + 2$. [3]

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19. In a speedboat race, competitors travel 8·5 km south from the start to buoy *A*.
Then they travel 7 km east to buoy *B* and then travel directly back to the start.
Calculate the total distance that the competitors travel in the race. [4]

Start

8·5 km

A

7 km

B
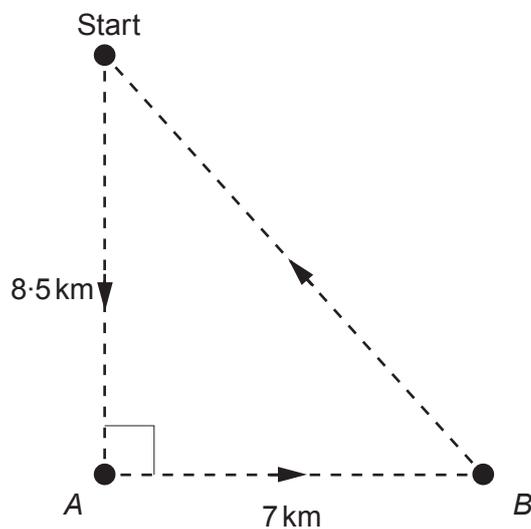
Diagram not drawn to scale

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