Surname	Centre Number	Candidate Number
Other Names		0

GCSE LINKED PAIR PILOT

4364/01

METHODS OF MATHEMATICS

UNIT 2: Methods (Calculator)
FOUNDATION TIER

A.M. MONDAY, 20 January 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.

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.

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 **11**.

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

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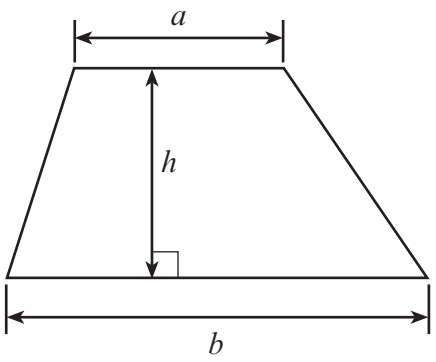
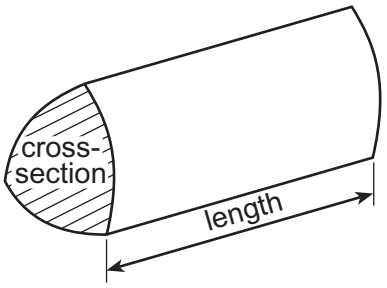
Formula List

Area of trapezium $= \frac{1}{2}(a + b)h$



Volume of prism = area of cross-section × length



Examiner only

1. *(a)* Write down the **smallest** four digit number that can be made using all the digits 4, 1, 9 and 6. [1]

.....

(b) Write down the **largest even** four digit number that can be made using all the digits 4, 1, 9 and 6. [1]

.....

2. In the following list, draw a circle around each number that has the same value as $\frac{1}{4}$. [2]

40% **25%** **0·14** $\frac{2}{8}$ **0·4**

3. A chess set costs £4.99.
How much change would you get from a £20 note if you bought four of these chess sets?
You must show the units of your answer. [3]

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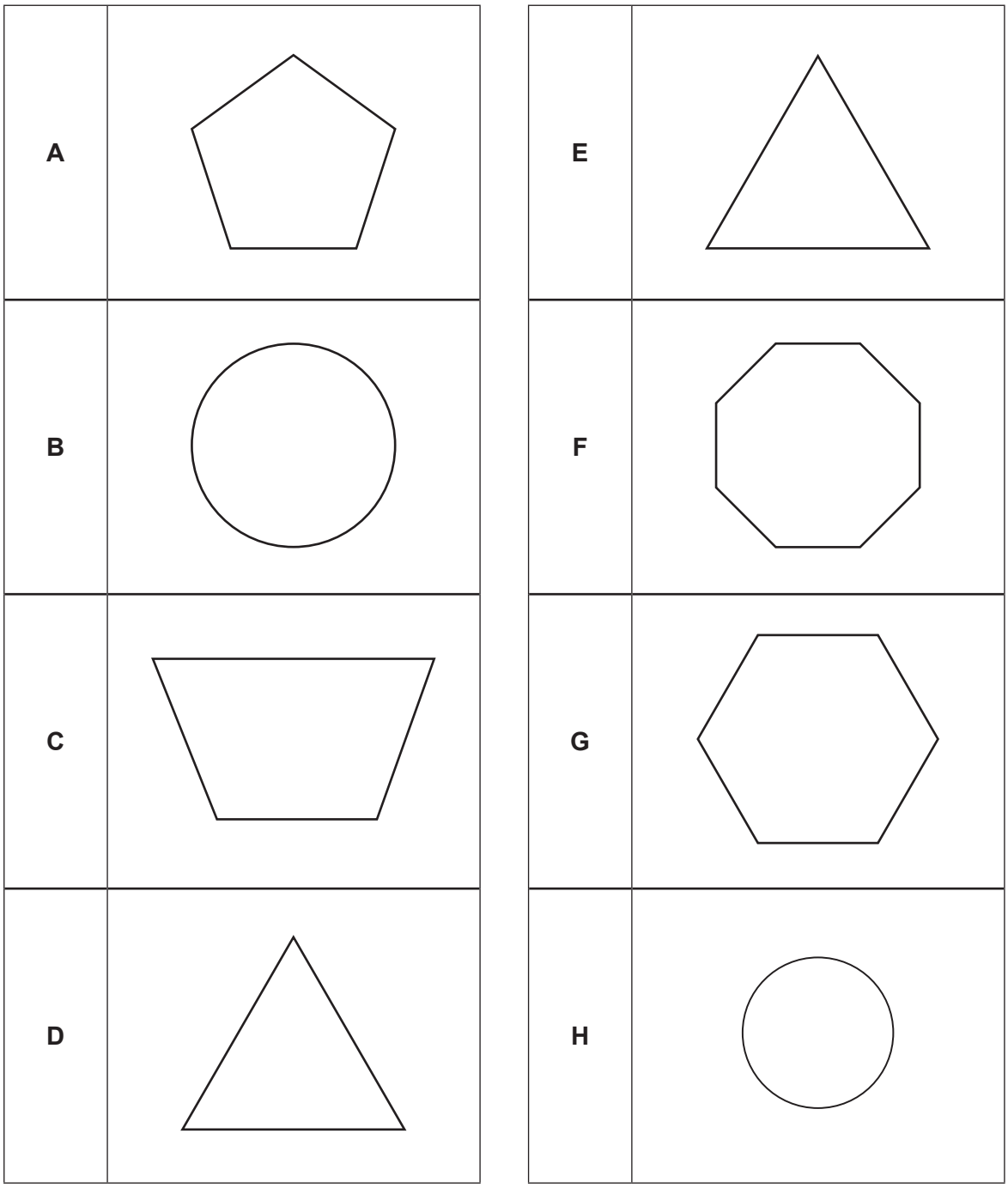
4364 010003

Turn over.

Examiner only

4. *(a)*



Use the diagrams above to identify and write down [2]

- a pair of congruent shapes

.....

- a pair of shapes that are similar but not congruent

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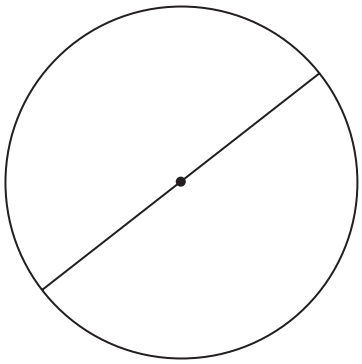
Examiner only

(b) Write down the special name of the straight line shown in each of the following diagrams. [2]



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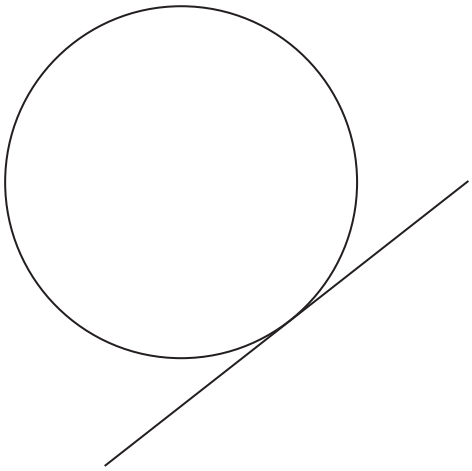

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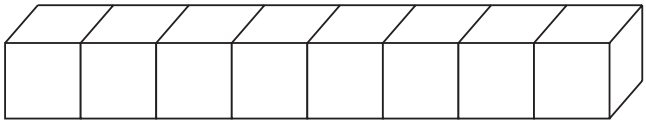
Turn over.

Examiner only

5. A shape consists of a row of cubes each measuring 1 cm by 1 cm by 1 cm as shown below.



(a) (i) Write down the volume of this shape.
You must show the units of your answer. [2]

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.....

.....

(ii) Can you use all the cubes above to make a larger cube?
Explain your answer. [1]

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(b) Calculate the volume of the cuboid shown below. [2]

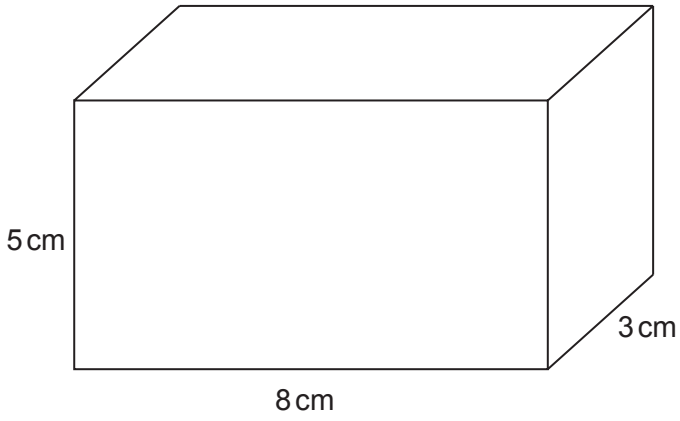

Diagram not drawn to scale

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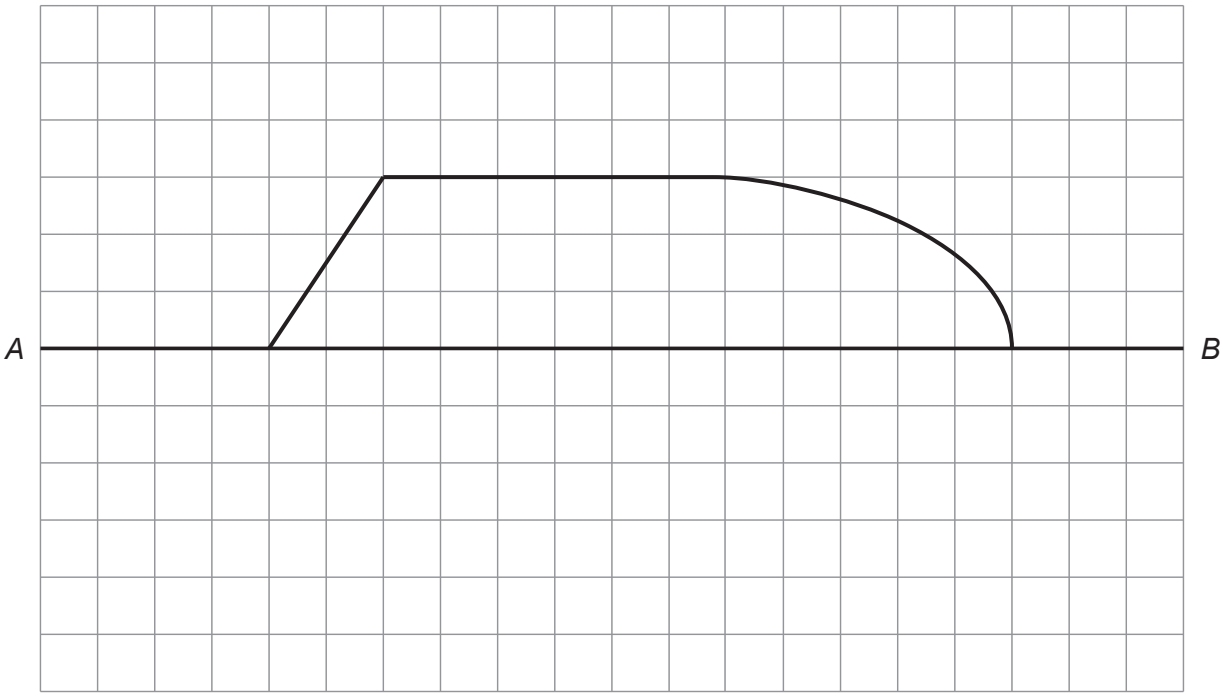
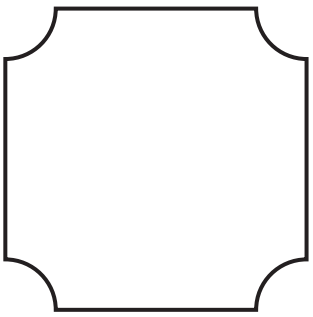
Examiner only

6. *(a)* Complete the following diagram so that *AB* is a line of symmetry. [2]



(b) Write down the order of rotational symmetry of the shape below.



Order of rotational symmetry = ... [1]

Examiner only

7. The ingredients needed to make raspberry pancakes are shown in the table below. Some of the quantities are missing.

(a) Fill in the missing quantities in the table. [4]

	8 pancakes	**16 pancakes**	**80 pancakes**
Flour	100 g	.....	1000 g
Eggs	1	2	10
Milk	.....	.....	2500 ml
Melted Butter	1 tablespoon	2 tablespoons	10 tablespoons
Raspberries	150 g	300 g	.....

(b) Write down the ratio of the weight of flour to the weight of raspberries **in its simplest form**. [2]

.....

Flour : Raspberries

..... : .....

Examiner only

8. *(a)* Find 23% of £52. [2]

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.....

(b) Find $\frac{4}{9}$ of 243. [2]

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9. **Showing all your working**, write 76%, 0·7 and $\frac{3}{4}$ in descending order. [3]

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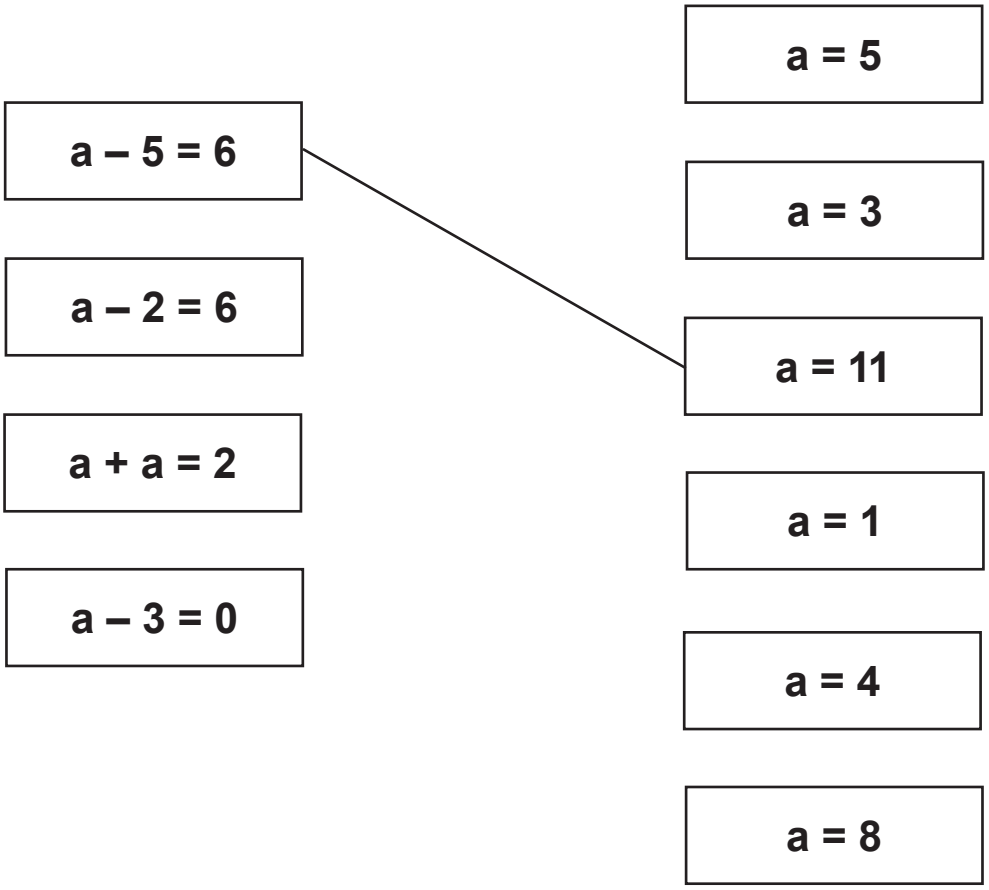
Turn over.

Examiner only

10. *(a)* Draw a line from each of the following equations to its solution.
The first one is done for you. [3]



(b) Write down an equation that gives the solution $x = 10$. [1]

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(c) Write down an equation that gives the solution $t = -4$. [1]

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Examiner only

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

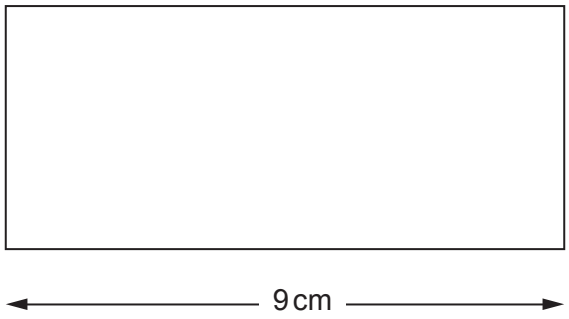

Diagram not drawn to scale

The area of this rectangle is 45 cm^2.
Calculate the perimeter of the rectangle.
You must show all your working. [6]

Examiner only

12. *(a)* Solve $4x = 16$. [1]

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(b) Solve $\frac{y}{5} = 4$. [1]

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.....

(c) Solve $5a - 8 = 17$. [2]

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.....

(d) Solve $\frac{20}{b} = 5$. [1]

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(e) The cost of a cup of tea is the same as the cost of a cup of coffee.
Two cups of tea and three cups of coffee cost £8 in total.
Find the cost of one cup of tea. [3]

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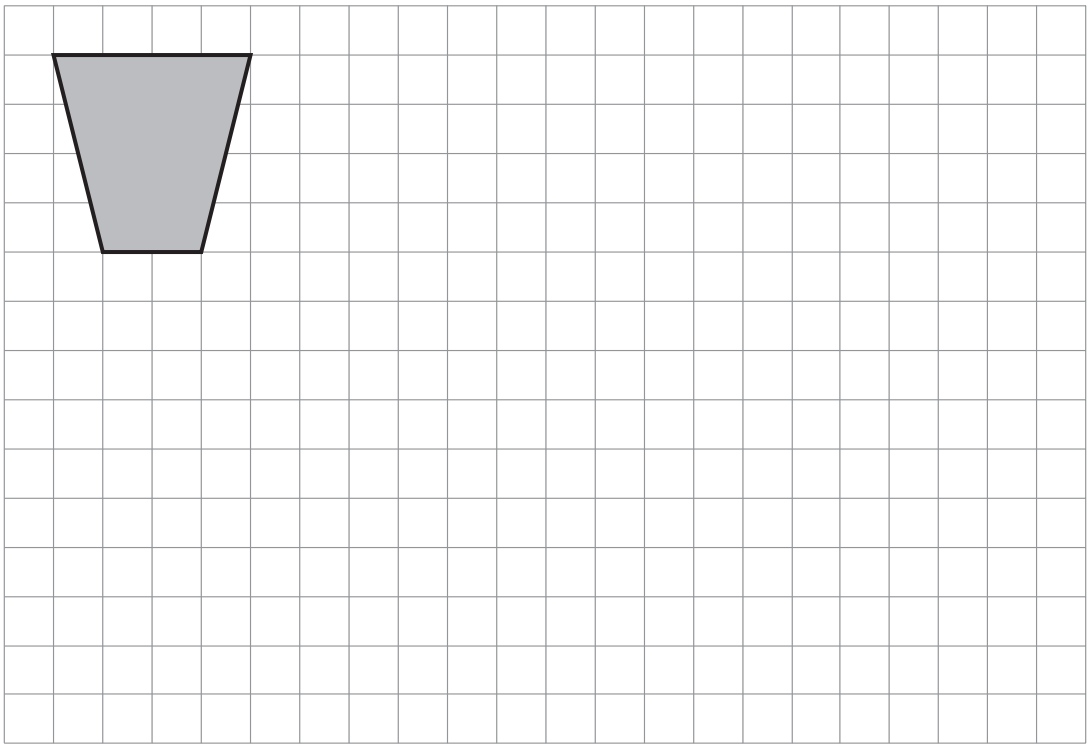
Examiner only

13. Enlarge the following shape by a scale factor of 2. [2]



Examiner only

14. *(a)* Calculate the cube root of 125. [1]

.....

(b) Calculate the value of 1·4 cubed. [1]

.....

(c) Find the value of $\sqrt{25{\cdot}3} + 2{\cdot}3^2$. Write down your answer to 1 significant figure. [2]

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(d) Find the value of $\sqrt{\dfrac{3}{4{\cdot}2^2 - 3}}$, giving your answer correct to two decimal places. [2]

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(e) Solve the inequality $5x + 3 > 18$. [2]

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Examiner only

15. The diagram shows a right-angled triangle.

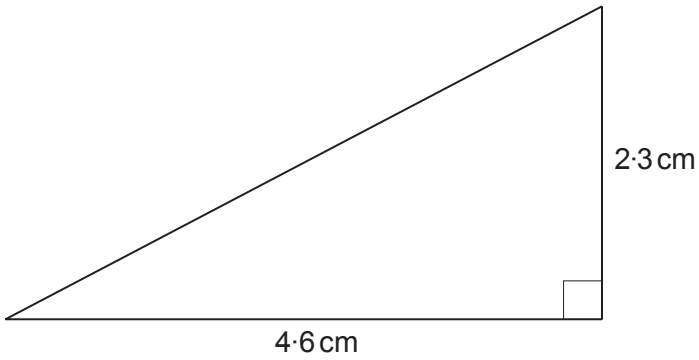

Diagram not drawn to scale

(a) Calculate the area of the right-angled triangle. [2]

(b) Calculate the length of the hypotenuse. [3]

Examiner only

16. *(a)* The area of a circle is $36\pi\,\text{cm}^2$.
What is the radius of this circle? [2]

(b)

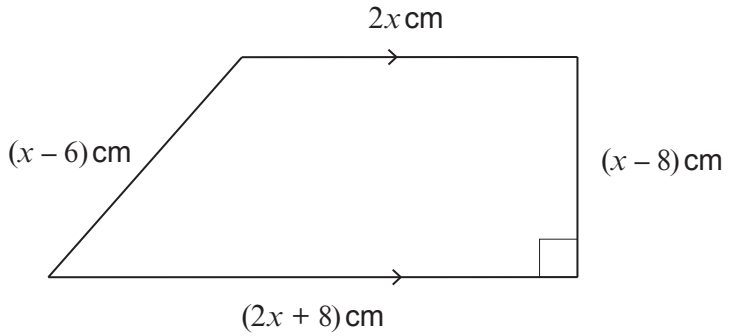

Diagram not drawn to scale

The **perimeter** of the trapezium is 132 cm.

Calculate the height of the trapezium.
You must show all your working. [5]

Examiner only

17. Abbie, Beatrice, Catrin and Debbie all sat the same test.

Name	Test results
Abbie	23 out of 84 marks awarded
Beatrice	Scored approximately 31%
Catrin	Total given was $\frac{1}{3}$ of marks available
Debbie	$\frac{27}{84}$

Compare their test results and complete the table below.
You must show all your working. [3]

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Position	Name
First 	.....
Second 	.....
Third 	.....
Fourth 	.....

Turn over.

Examiner only

18. *(a)* An amount of money is shared by three people in the ratio 2 : 5 : 8.
What fraction of this money is given to the person who receives the smallest share? [2]

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(b) Percentage change can be calculated by using multipliers.

A final answer is calculated as follows:

- £400 is increased by 26%
- The increased answer is then decreased by 24%
- This gives the final answer

The calculation to work out the final answer can be expressed, using multipliers, as the **product of three numbers**.
Complete the statement below. [2]

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Final answer = £400 x ..... x .....

END OF PAPER

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