

Write your name here

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|---------|-------------|
| Surname | Other names |
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Centre Number Candidate Number

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|---|---|---|
| Pearson Edexcel Level 1/Level 2 GCSE (9 - 1) | <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> | <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> |
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| | |
|--|-----------------------|
| <h1 style="margin: 0;">Mathematics A03</h1> <p style="margin: 0;">Mathematical problem solving</p> <h2 style="margin: 0;">Gold Test</h2> | Grades 5-6 |
|--|-----------------------|

| | |
|----------------------------|--------------------------------|
| Time: 45-60 minutes | Paper Reference 1MA1 |
|----------------------------|--------------------------------|

| | |
|--|--|
| You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. | Total Marks <div style="border: 1px solid black; width: 100%; height: 40px;"></div> |
|--|--|

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.*
- **Calculators must not be used in questions marked with an asterisk (*).**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out** with your **answer clearly identified** at the **end of your solution**.



Information

- This test is aimed at students targeting grades 5-6.
- This test has 8 questions. The total mark for this paper is 33.
- 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.

1. Axel and Lethna are driving along a motorway.

They see a road sign.

The road sign shows the distance to Junction 8

It also shows the average time drivers take to get to Junction 8

| |
|---|
| To Junction 8 30 miles 26 minutes |
|---|

The speed limit on the motorway is 70 mph.

Lethna says

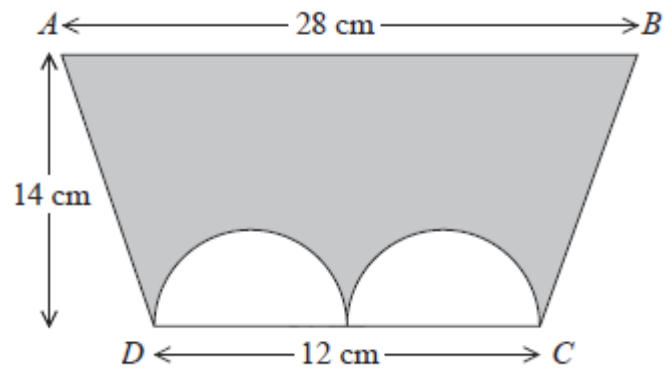
“We will have to drive faster than the speed limit to drive 30 miles in 26 minutes.”

Is Lethna right?

You must show how you get your answer.

(Total for Question 1 is 3 marks)

2. The diagram shows a trapezium $ABCD$ and two identical semicircles.



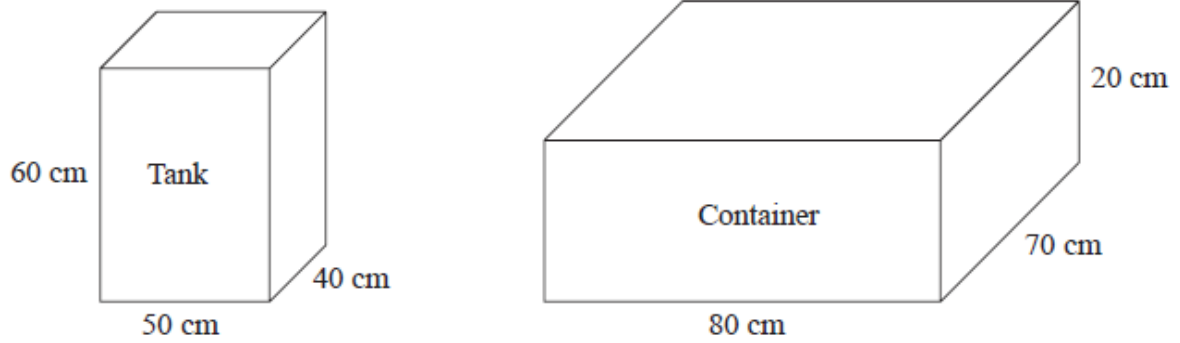
The centre of each semicircle is on DC .

Work out the area of the shaded region.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 2 is 4 marks)

3. The diagram shows a tank in the shape of a cuboid.
It also shows a container in the shape of a cuboid.



The tank is full of oil.
The container is empty

35% of the oil from the tank is spilled.
The rest of the oil from the tank is put into the container.

Work out the height of the oil in the container.
Give your answer to an appropriate degree of accuracy.

.....cm

(Total for Question 3 is 5 marks)

***4.** In a company, the ratio of the number of men to the number of women is 3 : 2

40% of the men are under the age of 25

10% of the women are under the age of 25

What percentage of all the people in the company are under the age of 25?

.....%

(Total for Question 4 is 4 marks)

5. Katy invests £2000 in a savings account for 3 years.

The account pays compound interest at an annual rate of

2.5% for the first year

x % for the second year

x % for the third year

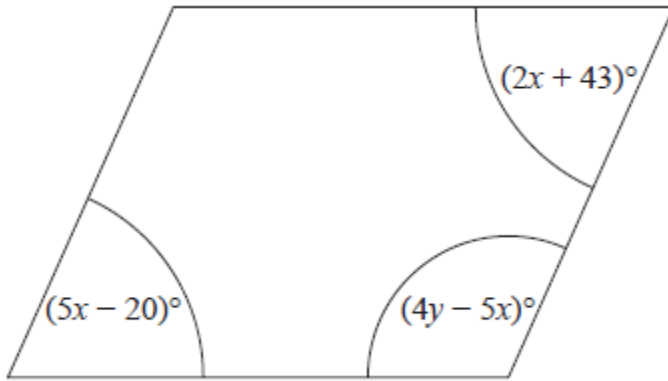
There is a total amount of £2124.46 in the savings account at the end of 3 years.

Work out the rate of interest in the second year.

.....

(Total for Question 5 is 4 marks)

*6. Here is a parallelogram.



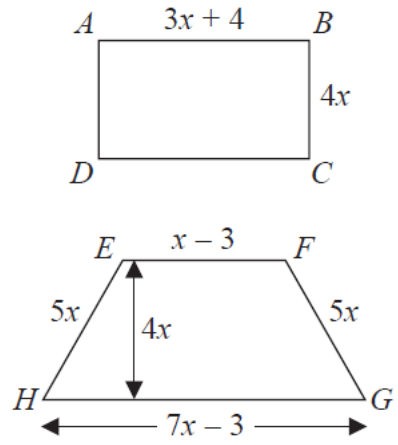
Work out the value of x and the value of y .

$x = \dots\dots\dots$

$y = \dots\dots\dots$

(Total for Question 6 is 5 marks)

7. $ABCD$ is a rectangle.
 $EFGH$ is a trapezium.



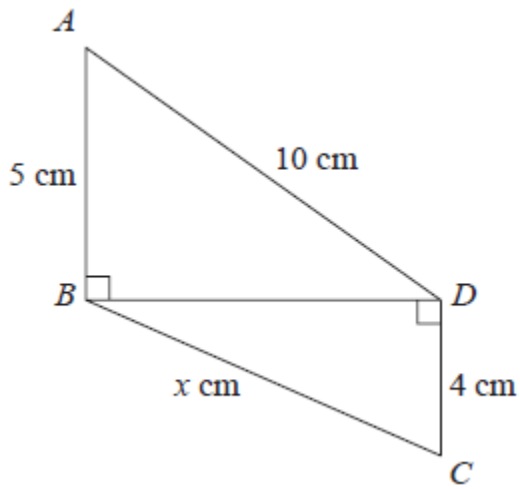
All measurements are in centimetres.
The perimeters of these two shapes are the same.

Work out the area of the rectangle.

..... cm^2

(Total for Question 7 is 5 marks)

8. Triangles ABD and BCD are right-angled triangles.



Work out the value of x .
Give your answer correct to 2 decimal places.

.....
(Total for Question 8 is 4 marks)

TOTAL FOR PAPER IS 33 MARKS

| Mathematical problem solving: Gold Test Grades 5-6 | | | |
|--|---------|-------------|---|
| Question | Working | Answer | Notes |
| 1 | | conclusion | P1 $30 \div 70 (= 0.428)$ |
| | | (supported) | P1 $26 \div 60 (= .4333\dots)$ |
| | | | P1 $30 \div 26 (= 1.153\dots)$ |
| | | | C1 $60 \times "0.428\dots"$ |
| | | | C1 $70 \times "0.4333\dots"$ |
| | | | C1 $60 \times "1.153\dots"$ |
| | | | C1 for conclusion linked to 25.7 minutes, 30.3 miles or 69.2 mph |
| 2 | | 252 | P1 For start to process e.g. radius = $12 \div 4 (= 3)$ M1 Method to find area of trapezium or semicircle or circle P1 Process to find area of the shaded region A1 $251.7 - 252$ |
| 3 | | 13.9 | P1 finds the volume of a cuboid eg. $50 \times 40 \times 60 (= 120000)$ P1 finds 35% of the oil from the cuboid eg. $120000 \times 0.35 (= 42000)$ P1 removes 35% of oil from cuboid eg. $120000 - 42000 (= 78000)$ P1 division to find missing side length eg. $78000 \div (80 \times 70)$ or 13.928... A1 for answer to an appropriate degree of accuracy e.g. (13.9 or 14 or 10) |

| Mathematical problem solving: Gold Test Grades 5-6 | | | |
|--|---------|--------|--|
| Question | Working | Answer | Notes |
| 4 | | 28 | <p>P1 Process to start to solve problem e.g. $\frac{3}{5} \times 40$ or divide any number in the ratio 3:2</p> <p>P1 Second step in process to solve problem eg. $\frac{2}{5} \times 10$ or find number of males/females under 25 for candidate's chosen number</p> <p>P1 for complete process</p> <p>A1</p> |
| 5 (a) | | 1.8% | <p>P1 for start to process e.g. $2000 \times 1.025 (= 2050)$</p> <p>P1 for process to use all given information e.g. "2050" $\times m^2 = 2124.46$ or "2050" $\times \left(1 + \frac{x}{100}\right)^2 = 2124.46$</p> <p>P1 for process to find their unknown, e.g. $m = \sqrt{\frac{2124.46}{2050}} (= 1.01799\dots)$</p> |

| Mathematical problem solving: Gold Test Grades 5-6 | | | |
|--|---------|------------------|---|
| Question | Working | Answer | Notes |
| 6 | | $x = 21, y = 50$ | <p>P1 process to start solving problem eg. form an appropriate equation</p> <p>P1 complete process to isolate terms in x</p> <p>A1 for $x = 21$</p> <p>P1 complete process to find second variable</p> <p>A1 $y = 50$</p> |
| 7 | | 203 | <p>P1 translate into algebra for rectangle: $4x + 4x + 3x + 4 + 3x + 4$ ($= 14x + 8$) or for trapezium: $5x + 5x + x - 3 + 7x - 3$ ($= 18x - 6$)</p> <p>P1 equating: e.g. $18x - 6 = 14x + 8$ ($4x = 14$)</p> <p>A1 solving for x: $x = 14/4 = 3.5$ oe</p> <p>P1 process to find area: “3.5” \times 3 + 4 (ft) or “3.5” \times 4 ft</p> <p>A1 cao</p> |
| 8 | | 9.54 | <p>P1 $10^2 - 5^2$ ($= 75$)</p> <p>P1 “75” + 4^2 ($= 91$)</p> <p>P1 $\sqrt{(10^2 - 5^2 + 4^2)}$</p> <p>P1 9.53 – 9.54</p> |

