GCSE Mathematics Practice Tests: Set 7B

Paper 1H (Non-calculator)

Time: 45 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

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 may be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The total mark for this paper is 40
- 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.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1.   (*a*) Simplify, leaving your answers in index form,

      (i) $7^5 \times 7^2 \times 7$

      ....

      (ii) $(4^7)^2$

      ....
      (2)

    (*b*) $\dfrac{5^n \times 5^3}{5^6} = 5^4$

      Find the value of *n*.

      $n =$ ....
      (2)

      (Total for Question 1 is 4 marks)

2.   The total weight of 3 identical video games is 525 g.
      Work out the total weight of 5 of these video games.

      .... g

      (Total for Question 2 is 2 marks)

3. There are

> x stamps in a small packet
> $(x + 3)$ stamps in a medium packet
> and $(x + 4)$ stamps in a large packet

The total number of stamps in the three packets is N.

(i) Write down an equation for N in terms of x.
Give your equation in its simplest form.

....
(2)

There is a total of 61 stamps.

(ii) Work out the number of stamps in the medium packet.

....
(3)

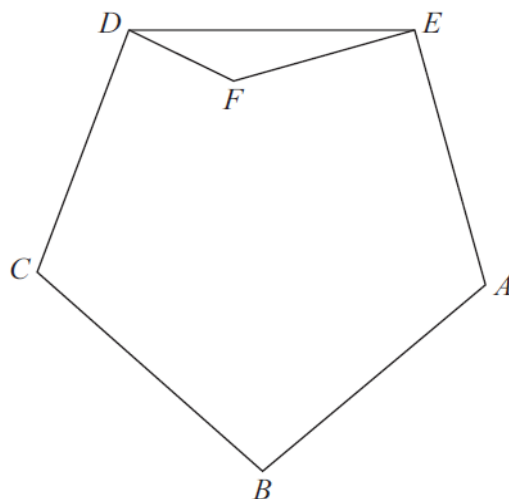**(Total for Question 3 is 5 marks)**

4. The mean of six numbers is 40
Three of the numbers are 102, 60 and 30
Each of the remaining three numbers is equal to x.

Find the value of x.

$x =$ ……………………………

(Total for Question 4 is 3 marks)

5.

ABCDE is a regular pentagon.

(a) Calculate the size, in degrees, of an interior angle of the pentagon.

....°

(2)

The point *F* lies inside the pentagon such that angle *CDF* = 70° and angle *FEA* = 85°

(b) Calculate the size, in degrees, of the **reflex** angle *DFE*.

....°

(4)

(Total for Question 5 is 6 marks)

6. A bank pays compound interest of 1% per annum on its savings accounts.
Evan invests £7500 for 2 years.

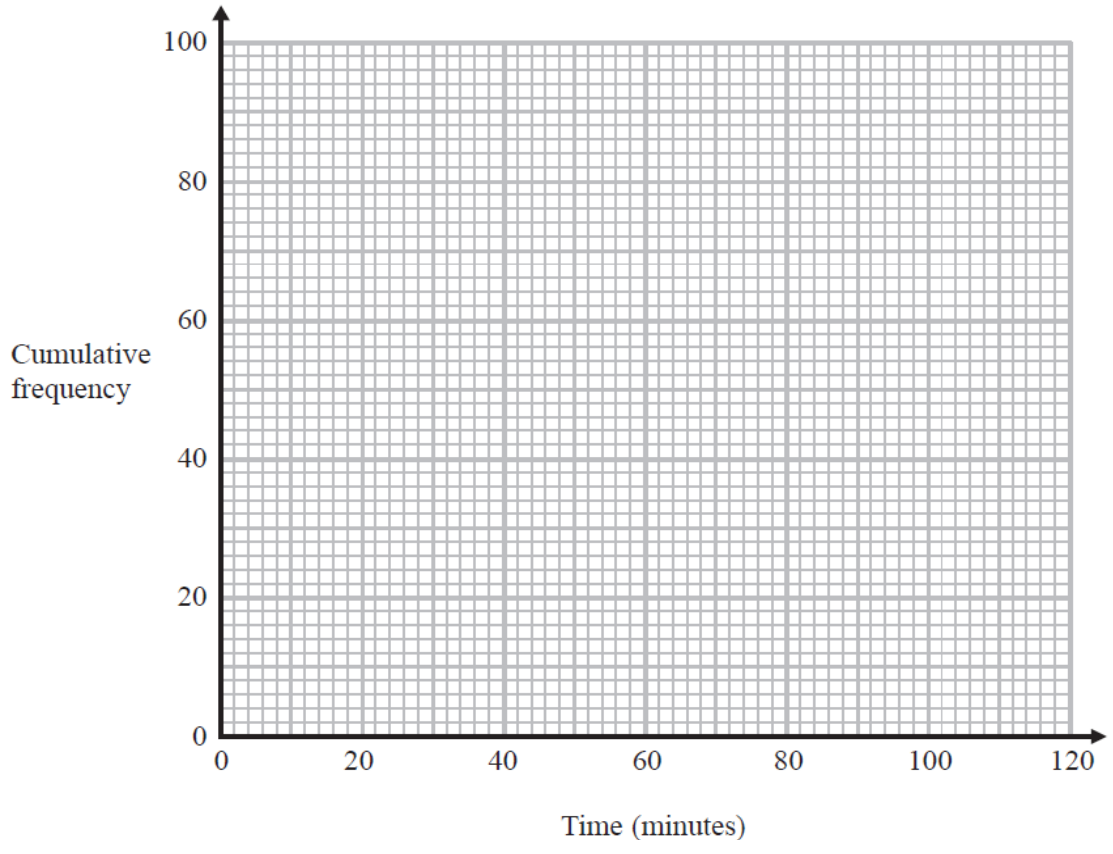Calculate the total interest gained after 2 years.

£ ....

(Total for Question 6 is 3 marks)

7. The frequency table gives information about the lengths of time 100 people spent in a coffee shop.

Time (t minutes)	Frequency
$0 < t \leq 20$	4
$20 < t \leq 40$	12
$40 < t \leq 60$	26
$60 < t \leq 80$	42
$80 < t \leq 100$	12
$100 < t \leq 120$	4

(*a*) On the grid, draw a cumulative frequency graph for your table.

(2)

(*b*) Use your graph to find an estimate for the number of these people who spent longer than 70 minutes in the coffee shop.

....

(2)

(Total for Question 7 is 4 marks)

8.   Express $\sqrt{48} + \sqrt{108}$ in the form $k\sqrt{6}$ where k is a surd.

....

(Total for Question 8 is 3 marks)

9. **C** is the curve with equation $y = x^2 - 4x + 4$
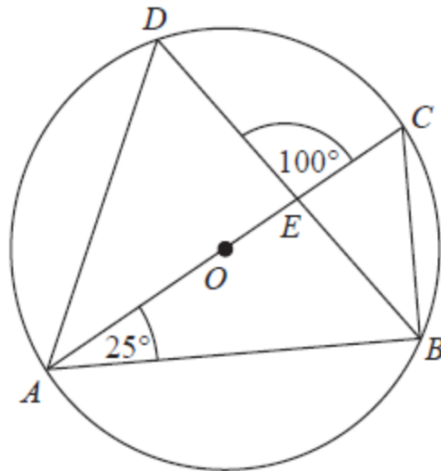
L is the straight line with equation $y = 2x - 4$

L intersects **C** at two points, A and B.

Calculate the exact length of AB.

(Total for Question 9 is 6 marks)

10. *A*, *B*, *C* and *D* are points on the circumference of a circle, centre *O*.

AC is a diameter of the circle.
AC and *BD* intersect at *E*.
Angle *CAB* = 25°
Angle *DEC* = 100°

Work out the size of angle *DAC*.
You must show all your working.

.... °

(Total for question 10 is 4 marks)

TOTAL FOR PAPER IS 40 MARKS