Cambridge IGCSE™ (9–1)

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MATHEMATICS **0980/03**

Paper 3 Calculator (Core) **For examination from 2025**

SPECIMEN PAPER B **1 hour 30 minutes**

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should use a scientific calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For π, use either your calculator value or 3.142.

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **18** pages.

[Turn over

v1

List of formulas

Area, A, of triangle, base b, height h.	$A = \dfrac{1}{2}bh$
Area, A, of circle of radius r.	$A = \pi r^2$
Circumference, C, of circle of radius r.	$C = 2\pi r$
Curved surface area, A, of cylinder of radius r, height h.	$A = 2\pi rh$
Curved surface area, A, of cone of radius r, sloping edge l.	$A = \pi rl$
Surface area, A, of sphere of radius r.	$A = 4\pi r^2$
Volume, V, of prism, cross-sectional area A, length l.	$V = Al$
Volume, V, of pyramid, base area A, height h.	$V = \dfrac{1}{3}Ah$
Volume, V, of cylinder of radius r, height h.	$V = \pi r^2 h$
Volume, V, of cone of radius r, height h.	$V = \dfrac{1}{3}\pi r^2 h$
Volume, V, of sphere of radius r.	$V = \dfrac{4}{3}\pi r^3$

3

1 **(a)** Write the number twenty million in figures.

.... [1]

(b) Write the number 470 658 correct to the nearest thousand.

.... [1]

2 Write one of the symbols < or > or = in each statement to make it correct.

$\frac{2}{7}$ 28%

7% 0.07

$\frac{1}{80}$ 0.01
[2]

3
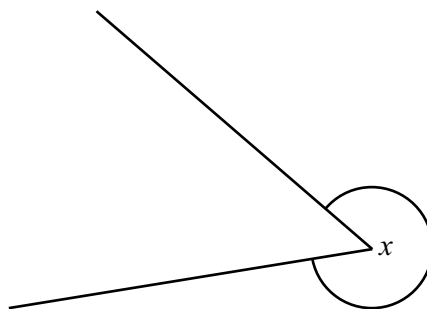
(a) Measure the angle marked x.

.... [1]

(b) Write down the mathematical name for this type of angle.

.... [1]

4   Peter's wages are $1350.

   (a) Peter spends 8% of his wages on travel.

   Find the amount he spends on travel.

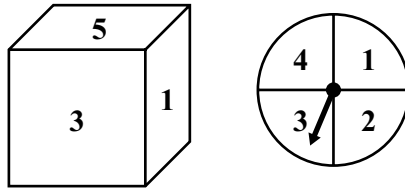 $ .... [1]

   (b) Peter spends $891 on rent.

   Find the percentage of his wages he spends on rent.

   ....% [1]

   (c) Find the amount of money Peter has left now.

   $ .... [1]

5 Kai has a fair 6-sided dice numbered 1 to 6 and a fair spinner numbered 1 to 4.

Kai rolls the dice and spins the spinner.
He finds a score by adding the two numbers together.

(a) Complete the table.

Number on dice

		1	2	3	4	5	6
Number on spinner	1	2	3	4	5		
	2	3	4	5	6	7	
	3	4	5	6	7	8	9
	4	5	6	7	8		

[2]

(b) Use the table to find the probability that the score is

(i) 5

.... [1]

(ii) less than 7.

.... [1]

6 **(a)** The table shows the opening times for a museum.

Monday to Friday	10 am to 5 pm
Saturday	9.30 am to 6 pm
Sunday	Closed

Work out how many hours the museum is open in one week.

.... hours [2]

(b)

Cost of museum tickets
Adult $27.00
Senior $20.60
Child $16.95

A family buys 5 adult tickets, 4 senior tickets and 3 child tickets for the museum.

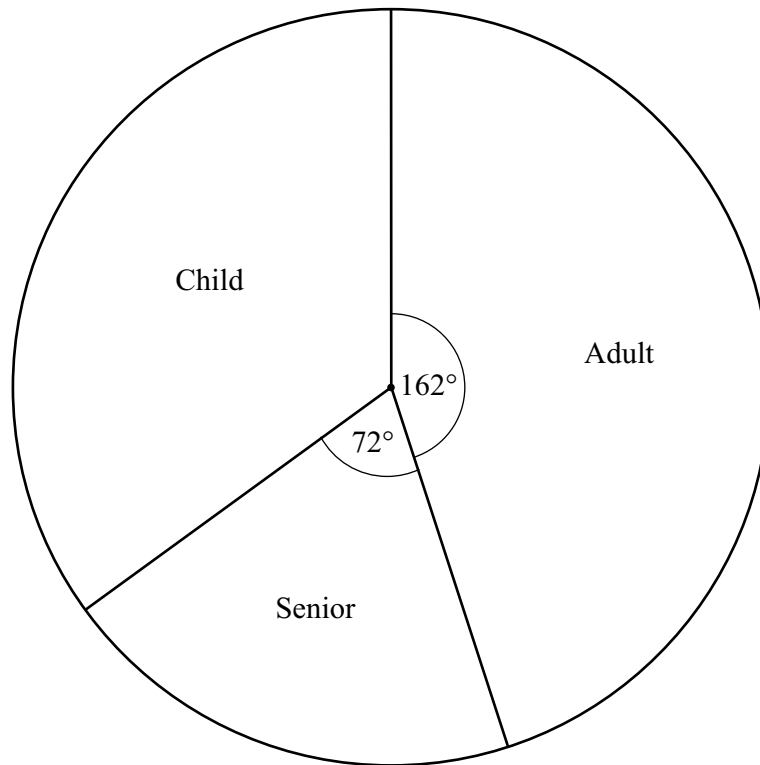Calculate the total cost of the tickets for this family.

$ .... [2]

(c) In one week, the ratio of visitors to the museum is $\text{adult} : \text{senior} : \text{child} = 9 : 5 : 7$.
In this week, 432 adults visit the museum.

Work out the total number of visitors to the museum in this week.

.... [2]

(d) The pie chart shows information about visitors to the museum on one day.

Complete the table.

	Number of visitors	Pie chart sector angle
Adult	108	162°
Senior		72°
Child		

[3]

7   A sequence of patterns is made using black and white counters.

Pattern 1   Pattern 2   Pattern 3   Pattern 4   Pattern 5
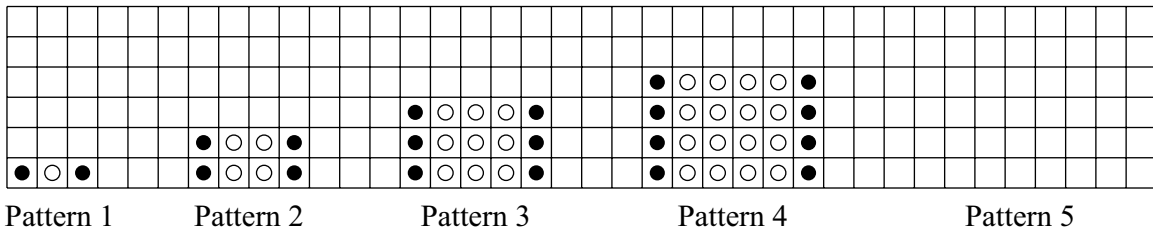
(a) Draw Pattern 5.   [1]

(b) Complete the table.

Pattern	1	2	3	4	5	6
Number of black counters	2	4	6	8		
Number of white counters	1	4	9	16		

[2]

(c) Write down the term-to-term rule for the number of black counters.

.... [1]

(d) Find an expression, in terms of n, for the number of black counters in Pattern n.

.... [1]

(e) Explain why there is no pattern in this sequence that uses 150 white counters.

....

.... [1]

8 Eva invests $12 800 for y years at a rate of 3.2% per year simple interest.
The total interest earned during the y years is $2457.60 .

Find the value of y.

$y =$ .... [2]

9 Simplify.

$$3x - 4y - 2x - 5y$$

.... [2]

10 (a) Expand.

$$3q(q - 7)$$

.... [1]

(b) Factorise.

$$14p - 6pq$$

.... [2]

11 (a) The table shows part of a bus timetable.

Northville	07 45	08 15	08 45	09 15	09 45
Oldfield	07 50	08 20	08 50	09 20	09 50
Exham	07 57	08 27	08 57	09 27	09 57
Beeton	08 05	08 35	09 06	09 35	10 05
Milltown	08 12	08 42	09 13	09 42	10 12

(i) Ria must arrive at Beeton before 09 00.

Write down the latest time she can catch a bus from Northville.

.... [1]

(ii) A bus leaves Oldfield at 08 50 and arrives at Milltown on time.

Find how many minutes the journey to Milltown takes.

.... min [1]

(b) The table shows the relative frequency of a bus arriving at Milltown early and arriving at Milltown on time.

Time of arrival	Early	On time	Late
Relative frequency	0.1	0.55	

(i) Complete the table.

[2]

(ii) During one week, 200 buses arrive at Milltown.

Calculate the number of buses expected to arrive early.

.... [1]

12 A café has 60 seats.

$\frac{3}{5}$ of the seats are occupied by adults.

9 seats are occupied by children.

Find the fraction of the seats that are **not** occupied.
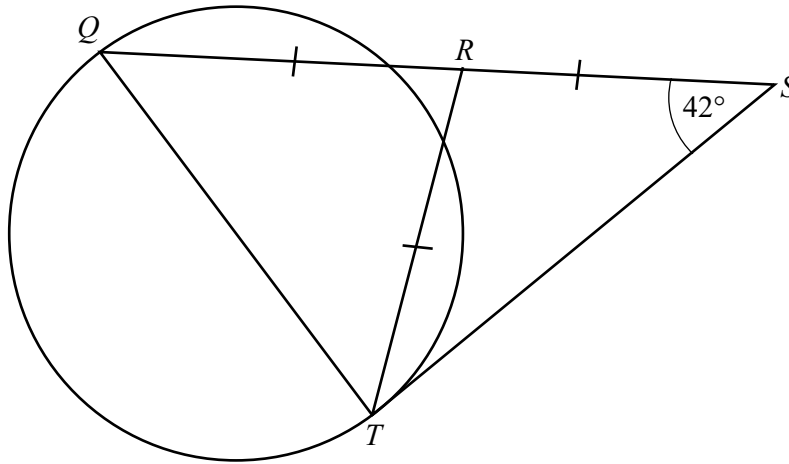Give your answer in its simplest form.

.... [3]

13 A bag of nuts costs \$3.
Jo buys *n* bags of nuts.

Find an expression for the change that Jo receives from \$20.

\$ .... [2]

14

Q and *T* are points on a circle.
QRS is a straight line.
ST is a tangent to the circle at *T*.
QR = *RS* = *RT* and angle *RST* = 42°.

(a) Find angle *RTS*.

Angle *RTS* = ... [1]

(b) Show that angle *QRT* = 84°.

[2]

(c) Explain why the line *QT* is a diameter of the circle.
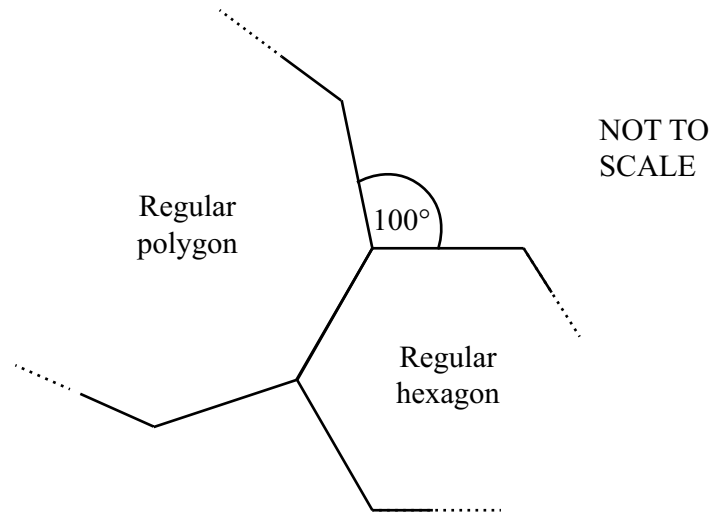You must show all your working, giving geometrical reasons.

....

....

.... [3]

15 (a) Calculate the exterior angle of a regular hexagon.

.... [2]

(b) The diagram shows part of a regular hexagon and part of a regular polygon.
The regular hexagon and the regular polygon are joined by a common side.

Calculate the number of sides of the regular polygon.

.... [2]

16 $-4 < x \leqslant 1$

Write down all the integers that satisfy this inequality.

.... [2]

17 Solve.

$$4(b - 7) = 24$$

b = ... [2]

18 A pyramid has a rectangular base.
The base has length 4.5 cm and width 2.5 cm.
The height of the pyramid is 7 cm.

Calculate the volume of the pyramid.

.... cm^3 [3]

19 In June, fuel for a bus costs $0.32 per kilometre.

(a) In June, a bus travels 1800 km.

Calculate the total cost of the fuel in June.

$ .... [1]

(b) In July, fuel for the bus costs 7.5% more per kilometre than the cost in June.
In July, the bus travels 1850 km.

Calculate the difference in the total cost of the fuel between June and July.

$ .... [4]

20 (a) The equation of line L is $y = 2x$.

Find the equation of the line parallel to line L that passes through (1, 5).
Give your answer in the form $y = mx + c$.

$y =$ .... [2]

(b) The grid shows line AB.
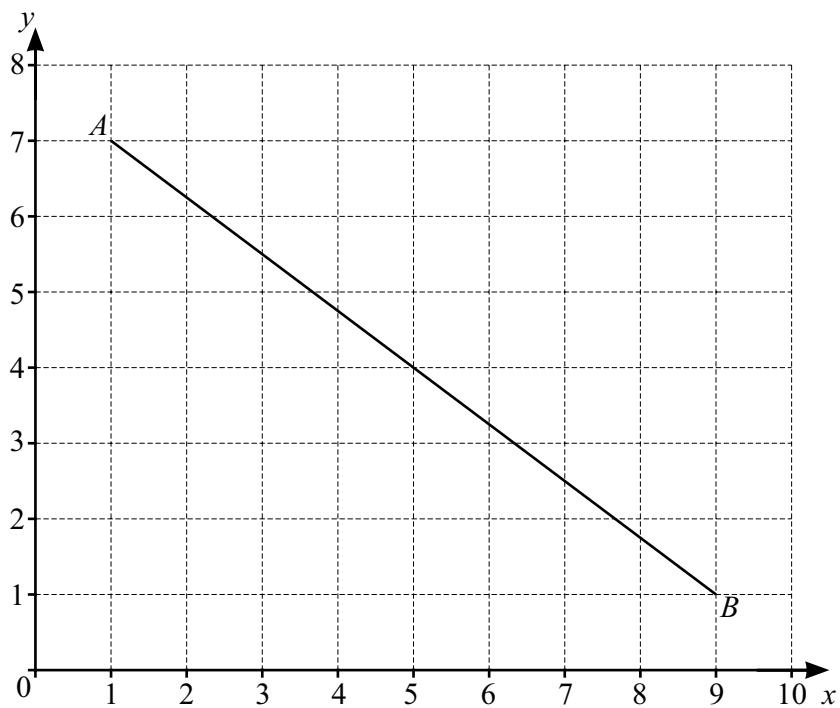
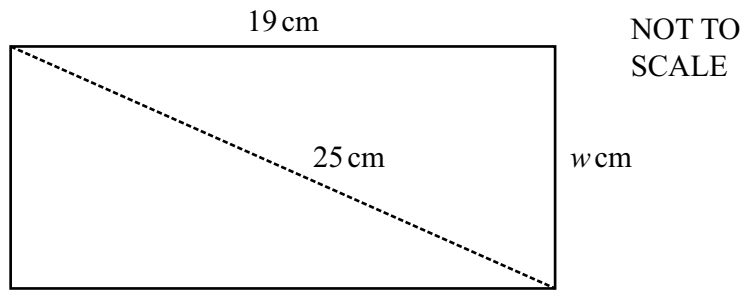Find the gradient of line AB.

.... [2]

21

120°   7 cm
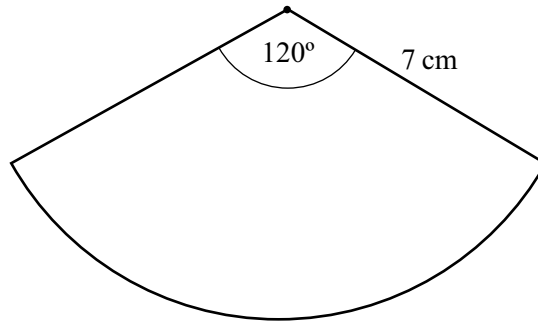
NOT TO SCALE

The diagram shows a sector of a circle with radius 7 cm and sector angle 120°.

Calculate the perimeter of this sector.

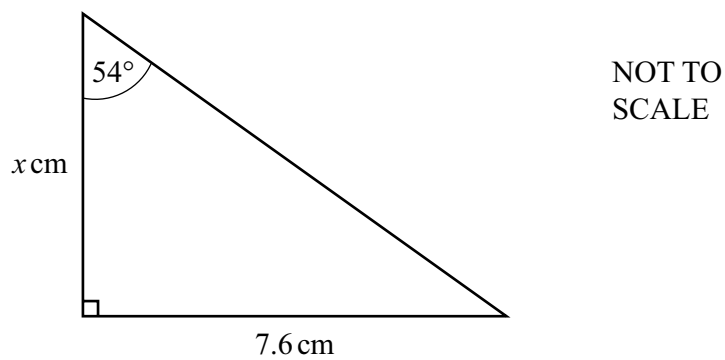... cm [3]

22 The diagram shows a rectangle.

19 cm

NOT TO SCALE

25 cm

w cm

Calculate the value of w.

$w =$ .... [3]

23 The diagram shows a right-angled triangle.

54°

NOT TO SCALE

x cm

7.6 cm

Calculate the value of x.

$x =$ .... [3]