



# Cambridge IGCSE<sup>®</sup>

CANDIDATE  
NAME

CENTRE  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--

\* 0 1 2 3 4 5 6 7 8 9 \*

**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/03**

Paper 3 (Core)

**For examination from 2020**

SPECIMEN PAPER

**1 hour 45 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 graphic display calculator where appropriate.
- You must show all necessary working clearly and you will be given marks for correct methods, including sketches, even if your answer is incorrect.
- 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  $\pi$ , use your calculator value.

## INFORMATION

- The total mark for this paper is 96.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages. Blank pages are indicated.

## Formula List

Area,  $A$ , of triangle, base  $b$ , height  $h$ .

$$A = \frac{1}{2}bh$$

Area,  $A$ , of circle, radius  $r$ .

$$A = \pi r^2$$

Circumference,  $C$ , of circle, 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  $l$ .

$$A = \pi rl$$

Curved 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  $h$ .

$$V = \frac{1}{3}Ah$$

Volume,  $V$ , of cylinder of radius  $r$ , height  $h$ .

$$V = \pi r^2 h$$

Volume,  $V$ , of cone of radius  $r$ , height  $h$ .

$$V = \frac{1}{3}\pi r^2 h$$

Volume,  $V$ , of sphere of radius  $r$ .

$$V = \frac{4}{3}\pi r^3$$

Answer **all** the questions.



1 (a) Write 32 652

(i) correct to the nearest 10,

..... [1]

(ii) correct to the nearest 100.

..... [1]

(b) Write 62.584 correct to 1 decimal place.

..... [1]

(c) Calculate  $4.8^4$ .

..... [1]

(d) Find  $\sqrt[3]{216}$ .

..... [1]

(e) Find the highest common factor (HCF) of 18 and 45.

..... [1]

(f) Find the lowest common multiple (LCM) of 6 and 8.

..... [1]

(g) Divide 442 in the ratio 8 : 9.

..... : ..... [2]

(h) Sem buys 7 hamburgers each costing \$1.20 .

Find how much change he receives from \$10.

\$ ..... [2]

- 2 (a) Write 0.75 as a fraction.

..... [1]

- (b) Write  $\frac{2}{3}$  as a percentage, giving your answer correct to 4 significant figures.

.....% [2]

- (c) Write 48% as a fraction in its lowest terms.

..... [2]

- (d) The price of a jacket is \$96.  
The price is reduced by 20%.

Find the new price of the jacket.

\$ ..... [2]

- (e) \$800 is invested at a rate of 3% per year compound interest.

Find the value of the investment after 5 years.

\$ ..... [3]

- 3 A special die has 10 faces numbered 1 to 10.  
When the die is rolled it is equally likely to land on any face.

Find the probability that the die lands on

- (a) an even number,

..... [1]

- (b) a prime number,

..... [1]

- (c) 11,

..... [1]

- (d) a square number less than 5.

..... [1]

- 4 Jacinta asks some students in her class which colour they prefer. The results are in the table.

Colour	Number of students
Brown	1
Green	4
Black	8
Pink	12
Blue	15

- (a) Calculate the total number of students.

..... [1]

- (b) Write down the most popular colour.

..... [1]

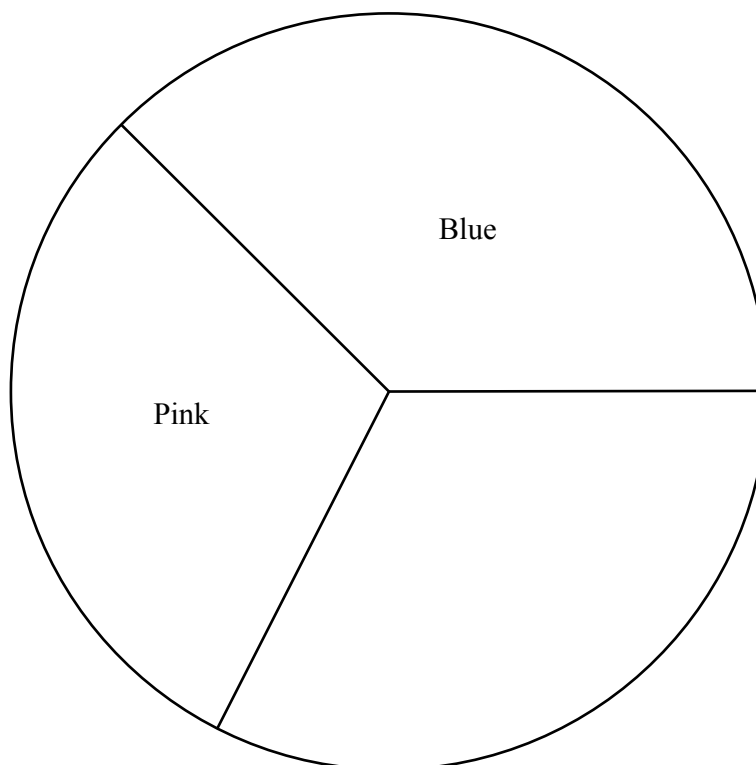
(c) Jacinta wants to draw a pie chart for these results.

Colour	Number of students	Sector angle in pie chart
Brown	1	
Green	4	
Black	8	
Pink	12	$108^\circ$
Blue	15	$135^\circ$

(i) Complete the table.

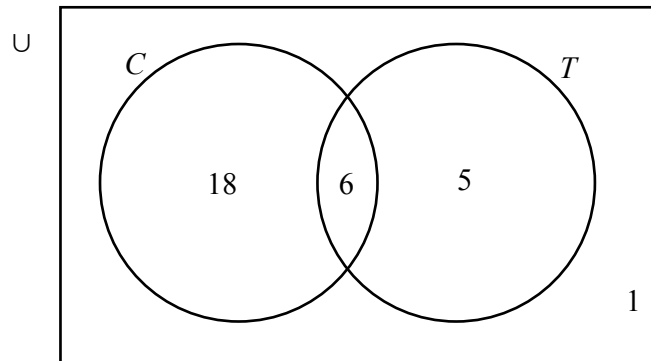
[2]

(ii) Complete the pie chart to show this information.  
Two sectors have been drawn for you.



[2]

- 5 HanRa asked 30 students if they ate cereal ( $C$ ) or toast ( $T$ ) for breakfast. The information is shown in the Venn diagram.



Write down the number of students in

- (a)  $C \cap T$ ,

..... [1]

- (b)  $C$ ,

..... [1]

- (c)  $(C \cup T)'$ ,

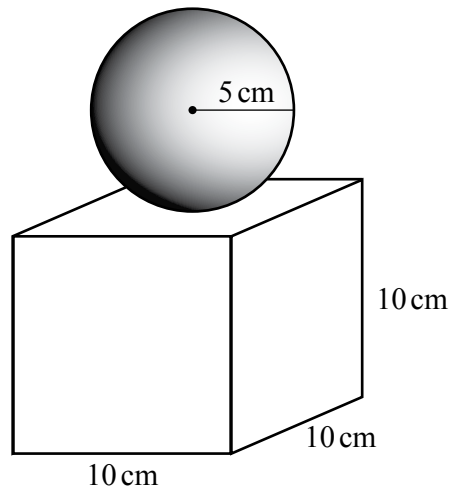
..... [1]

- (d)  $T \cup C'$ .

..... [1]



NOT TO SCALE



A trophy is in the shape of a cube of side 10 cm with a sphere of radius 5 cm on top.

(a) Find the surface area of the cube.

.....cm<sup>2</sup> [2]

(b) Find the surface area of the sphere.

.....cm<sup>2</sup> [2]

(c) Find the total **volume** of the trophy.

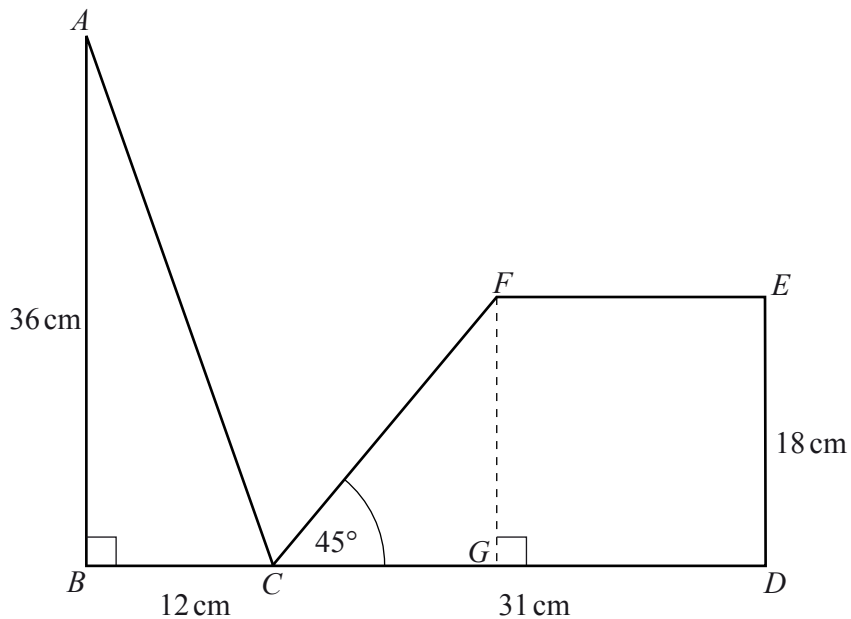
.....cm<sup>3</sup> [4]

The trophy is made from metal that costs 4 cents per cm<sup>3</sup>.

(d) Find the cost of the metal used to make the trophy.  
Give your answer in dollars.

\$ ..... [2]

7



NOT TO SCALE

The diagram shows the design for a company logo.  
The logo is made up of a triangle  $ABC$  and a trapezium  $CDEF$ .  
 $BCGD$  is a straight line and angle  $FCD = 45^\circ$ .

$AB = 36$  cm,  $BC = 12$  cm,  $CD = 31$  cm and  $ED = 18$  cm.

(a) Find the size of angle  $CFE$ .

Angle  $CFE = \dots\dots\dots$  [1]

(b) Use trigonometry to calculate the size of angle  $BCA$ .

Angle  $BCA = \dots\dots\dots$  [2]

(c) Use Pythagoras' Theorem to find the length of  $AC$ .

$AC = \dots\dots\dots$  cm [2]

(d) Calculate the length of  $CF$ .

$CF = \dots\dots\dots$  cm [3]

(e) (i) Explain why  $EF = 13$  cm.

[2]

(ii) Find the total perimeter of the logo.

$\dots\dots\dots$  cm [1]

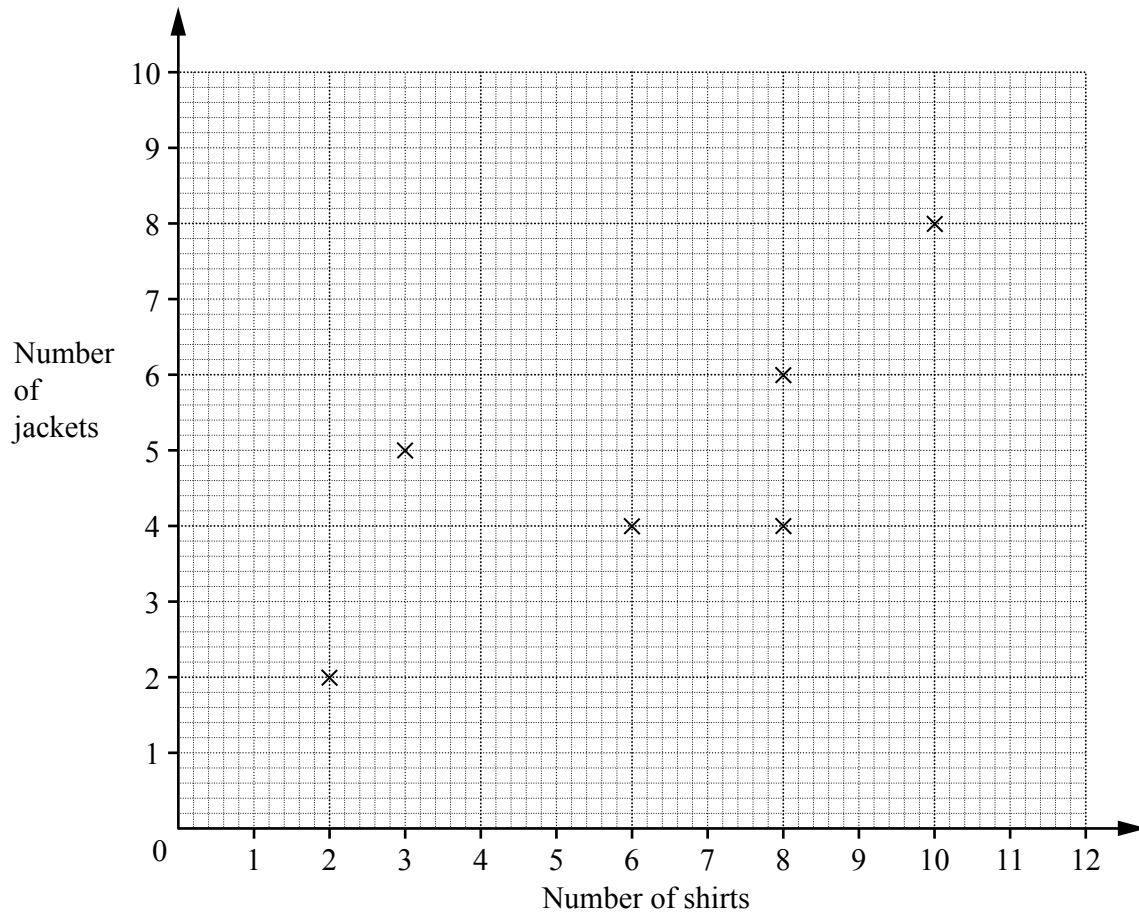
(f) Calculate the total area of the logo.

$\dots\dots\dots$  cm<sup>2</sup> [3]

8 The table shows the number of shirts and the number of jackets owned by 12 students.

Shirts	3	6	2	8	8	10	6	5	9	8	4	12
Jackets	5	4	2	4	6	8	5	4	6	5	4	7

(a) Complete the scatter diagram.  
The first 6 points have been plotted for you.



[2]

(b) Write down the type of correlation shown by the scatter diagram.

..... [1]

(c) (i) Find the mean number of shirts.

..... [1]

(ii) Find the mean number of jackets.

..... [1]

(iii) On the diagram, plot the mean point.

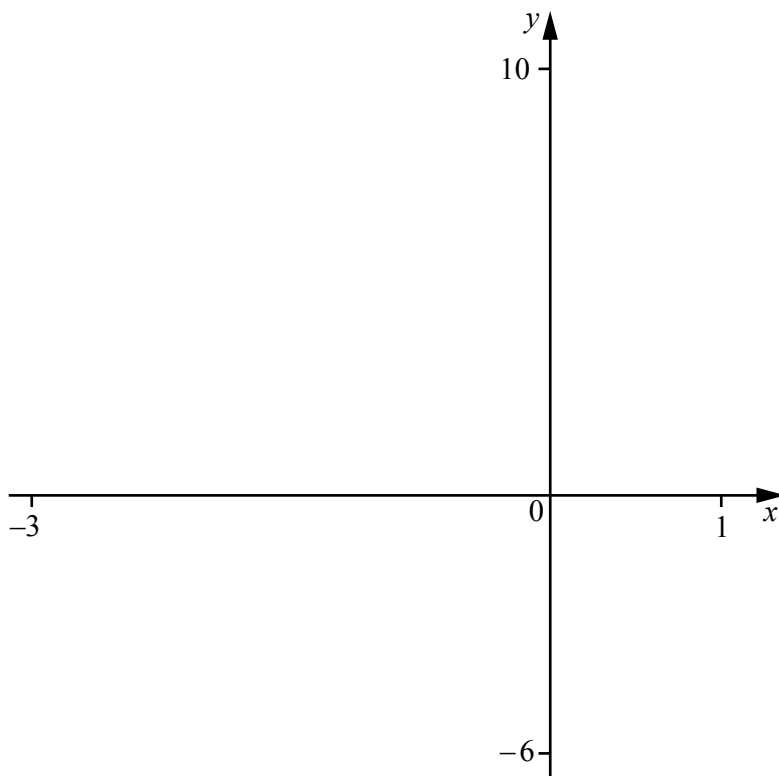
[1]

(d) On the diagram, draw a line of best fit by eye.

[2]

(e) Use your line of best fit to estimate the number of jackets for a student who has 7 shirts.

..... [1]



$$f(x) = 6 - 5x - 3x^2$$

(a) On the diagram, sketch the graph of  $y = f(x)$  for  $-3 \leq x \leq 1$ . [2]

(b) Write down the  $y$ -coordinate of the point where the graph crosses the  $y$ -axis.

$y = \dots\dots\dots$  [1]

(c) Write down the  $x$ -coordinates of the points where the graph crosses the  $x$ -axis.

$x = \dots\dots\dots$  and  $x = \dots\dots\dots$  [2]

(d) Find the coordinates of the local maximum point.

( $\dots\dots\dots$ ,  $\dots\dots\dots$ ) [1]

(e)  $g(x) = 2x + 4$

On the same diagram, sketch the graph of  $y = g(x)$ . [2]

(f) Find the coordinates of the points of intersection of  $f(x)$  and  $g(x)$ .

( $\dots\dots\dots$ ,  $\dots\dots\dots$ ) and ( $\dots\dots\dots$ ,  $\dots\dots\dots$ ) [2]

10 (a) Solve.

(i)  $5x + 6 = -4$

..... [2]

(ii)  $6x + 3 < 21$

..... [2]

(b) Simplify.

(i)  $s^3 \times s^4$

..... [1]

(ii)  $(t^2)^4$

..... [1]

(iii)  $18r^3 \div 3r$

..... [2]

(c) Expand and simplify.

$$4(x - 3) + 3(2x + 1)$$

..... [2]

(d) Factorise completely.

$$15y - 3y^2$$

..... [2]

Question 11 is printed on the next page.

- 11 (a) Ahmed cycles 15 kilometres in 50 minutes.

Find his average speed in kilometres per hour.

..... km/h [3]

- (b) George runs 15 kilometres at an average speed of 12 kilometres per hour.

Find how many minutes it takes George to run the 15 kilometres.

..... min [3]

---

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

Cambridge Assessment International Education is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.