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CAMBRIDGE INTERNATIONAL MATHEMATICS

0607/23

Paper 2 Non-calculator (Extended)

May/June 2025

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.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary working clearly. You will be given marks for correct methods even if your answer is incorrect.

INFORMATION

- The total mark for this paper is 75.
- The number of marks for each question or part question is shown in brackets [].

This document has **12** pages.

List of formulas

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

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

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 .

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

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

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

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

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

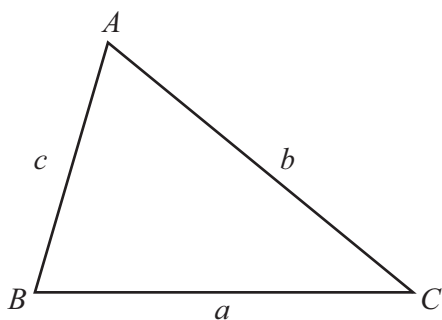
Volume, V , of sphere of radius r .

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

For the equation $ax^2 + bx + c = 0$, where $a \neq 0$,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

For the triangle shown,



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$\text{Area} = \frac{1}{2}ab \sin C$$



Calculators must **not** be used in this paper.

- 1 Work out.

$$2 - 5 \times 3 + 7$$

..... [1]

- 2 This is a list of numbers.

20 21 22 23 24 25 26 27

From the list write down

- (a) the square number

..... [1]

- (b) the prime number

..... [1]

- (c) the triangle number.

..... [1]

- 3 Simplify.

$$2x - 3y - x - 2y$$

..... [2]

- 4 A regular polygon has 20 sides.

Work out the size of one interior angle of the polygon.

..... [3]



5 Ganpreet and Rahul share \$240 in the ratio 7 : 5.

(a) Show that the value of Rahul's share is \$100.

[1]

(b) Ganpreet spends \$ x of her share.

Rahul spends \$ x of his share.

The ratio of their remaining money is Ganpreet : Rahul = 2 : 1.

Find the value of x .

$x = \dots\dots\dots$ [3]

6 The cost of a bar of chocolate is \$ c .
The cost of a packet of sweets is \$ p .

The total cost of 5 bars of chocolate and 2 packets of sweets is \$13.

The total cost of 7 bars of chocolate and 4 packets of sweets is \$20.

By forming a pair of simultaneous equations, find the cost of one bar of chocolate and the cost of one packet of sweets.

cost of one bar of chocolate = \$

cost of one packet of sweets = \$

[5]

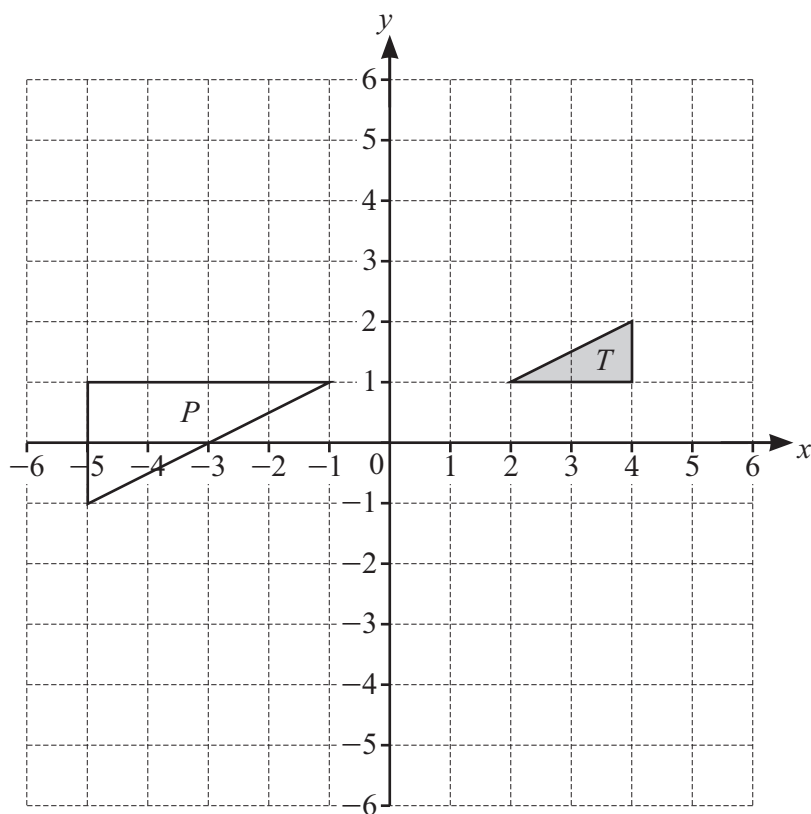


- 7 Work out $5\frac{1}{3} \div 1\frac{3}{5}$.

Give your answer as a mixed number in its simplest form.

..... [3]

8



- (a) Translate triangle T by the vector $\begin{pmatrix} 1 \\ -4 \end{pmatrix}$. [2]

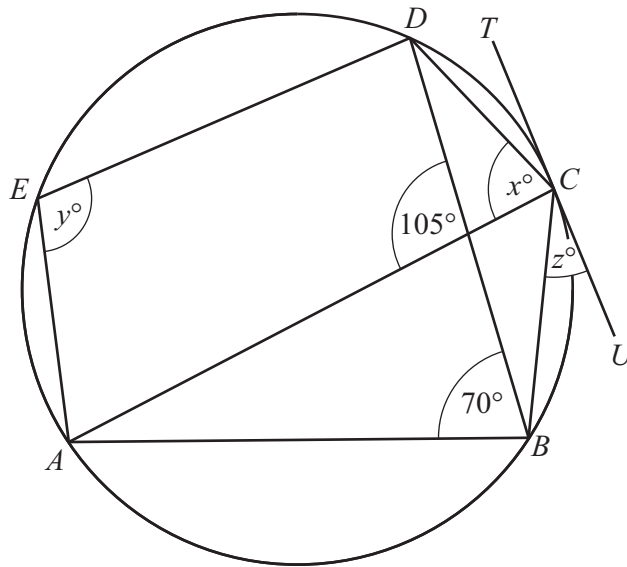
- (b) Describe fully the **single** transformation that maps triangle T onto triangle P .

..... [3]

- 9 Find the value of $16^{-\frac{3}{2}}$.

..... [2]





NOT TO
SCALE

A, B, C, D and E lie on the circle.
 TU is a tangent to the circle at C .

Find the values of x, y and z .

$x = \dots\dots\dots$

$y = \dots\dots\dots$

$z = \dots\dots\dots$

[4]

11 (a) Simplify.

$$\sqrt{27} - 2\sqrt{75}$$

$\dots\dots\dots$ [2]

(b) Rationalise the denominator and simplify.

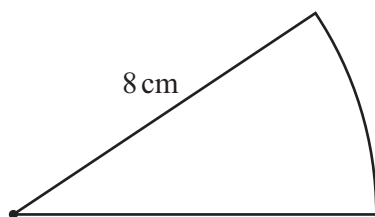
$$\frac{6}{\sqrt{5} - \sqrt{2}}$$

$\dots\dots\dots$ [3]





12



NOT TO
SCALE

The diagram shows a sector of a circle with radius 8 cm.

The area of the sector is $8\pi \text{ cm}^2$.

The perimeter of the sector is $(a + b\pi) \text{ cm}$.

Find the value of a and the value of b .

$a =$

$b =$

[4]

13 Work out.

$$4.9 \times 10^{199} + 4.9 \times 10^{197}$$

..... [2]



14 $f(x) = \cos x, \quad 0^\circ \leq x \leq 360^\circ$

(a) Write down the exact value of

(i) $f(0)$

..... [1]

(ii) $f(30)$.

..... [1]

(b)



On the diagram, sketch the graph of $y = f(x)$ for $0^\circ \leq x \leq 360^\circ$. [2]

(c) Write down the amplitude of $f(x)$.

..... [1]

15 $y^{2k} \times y^3 = \frac{1}{y}$

Find the value of k .

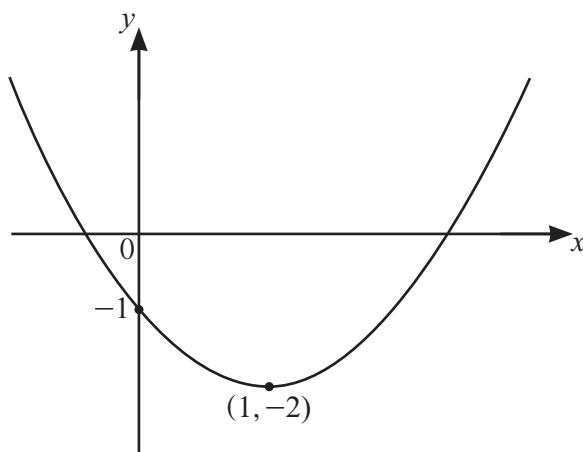
$k =$ [2]



16 Rearrange $4y - 3x = 1 - py$ to write y in terms of p and x .

$y = \dots\dots\dots$ [2]

17



NOT TO
SCALE

The diagram shows a sketch of the graph of $y = x^2 + ax + b$.
The point $(1, -2)$ is a minimum.

Find the value of a and the value of b .

$a = \dots\dots\dots$

$b = \dots\dots\dots$

[3]





18 Solve.

$$3(2x + 1) > 5 - 4x$$

..... [3]

19 Solve.

Give each answer as an exact value.

(a) $2^x = 5$

$x =$ [1]

(b) $2 \log y = 1$

$y =$ [1]

20 These are the first 5 terms of a sequence.

3 6 12 24 48

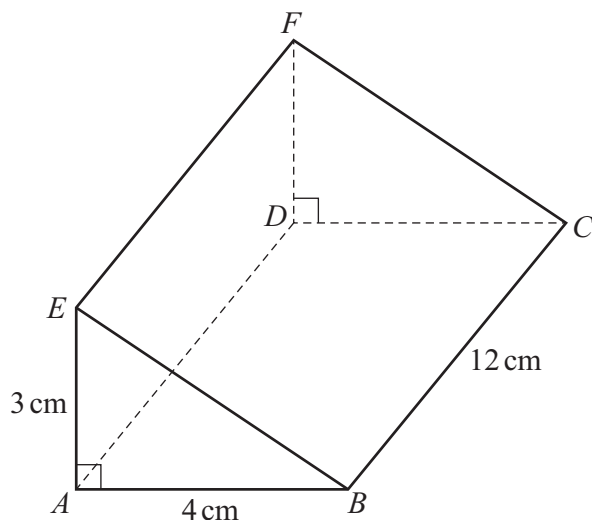
(a) Find the next term of the sequence.

..... [1]

(b) Find the n th term of the sequence.

..... [2]





NOT TO
SCALE

The diagram shows a triangular prism.
The cross-section is a right-angled triangle EAB .
 $AE = 3$ cm, $AB = 4$ cm and $BC = 12$ cm.

(a) Work out the length of BF .

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

(b) Find the sine of the angle between BF and the base $ABCD$.

$\dots\dots\dots$ [1]

22 Write as a single fraction in its simplest form.

$$2 - \frac{3}{x-2}$$

$\dots\dots\dots$ [2]

Question 23 is printed on the next page.





Bag A



Bag B

Bag A contains 4 white balls and 3 black balls.

Bag B contains 5 white balls and 4 black balls.

- (a) Ranjit picks a ball at random from Bag A and replaces it.
Ranjit also picks a ball at random from Bag B and replaces it.

Find the probability that the two balls are the same colour.

..... [3]

- (b) Leyla picks a ball at random from Bag A.
She places it into Bag B.
She then picks a ball at random from Bag B.

Find the probability that the ball she picks from Bag B is black.

..... [3]

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