



# Cambridge IGCSE™

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**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/22**

Paper 2 (Extended)

**October/November 2021**

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

## INFORMATION

- The total mark for this paper is 40.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **12** pages. Any blank pages are indicated.

## Formula List

For the equation  $ax^2 + bx + c = 0$   $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

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  $l$ .  $A = \pi rl$

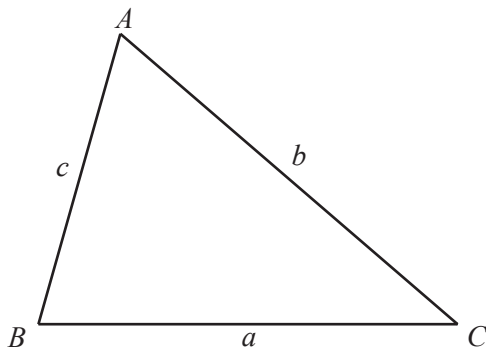
Curved surface area,  $A$ , of sphere of radius  $r$ .  $A = 4\pi r^2$

Volume,  $V$ , of 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  $r$ .  $V = \frac{4}{3}\pi r^3$



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

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

$$\text{Area} = \frac{1}{2}bc \sin A$$

3

Answer **all** the questions.

1 Work out.

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

..... [1]

2 Complete the statement.

A parallelogram has rotational symmetry of order .....

and ..... lines of symmetry. [2]

3 (a) A number is greater than 1.  
The number is also both a square number and a cube number.

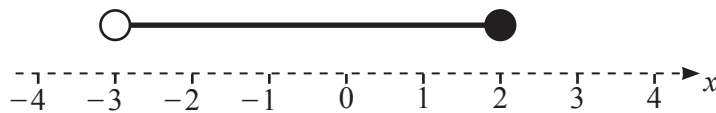
Write down a possible value of this number.

..... [1]

(b) Write down a prime number between 90 and 100.

..... [1]

4



Write down the inequality shown on the number line.

..... [1]

5 Work out.

$$\frac{3}{4} \div \frac{8}{9}$$

..... [2]

6  $|x| < 2$

Write down all the integer values of  $x$ .

..... [1]

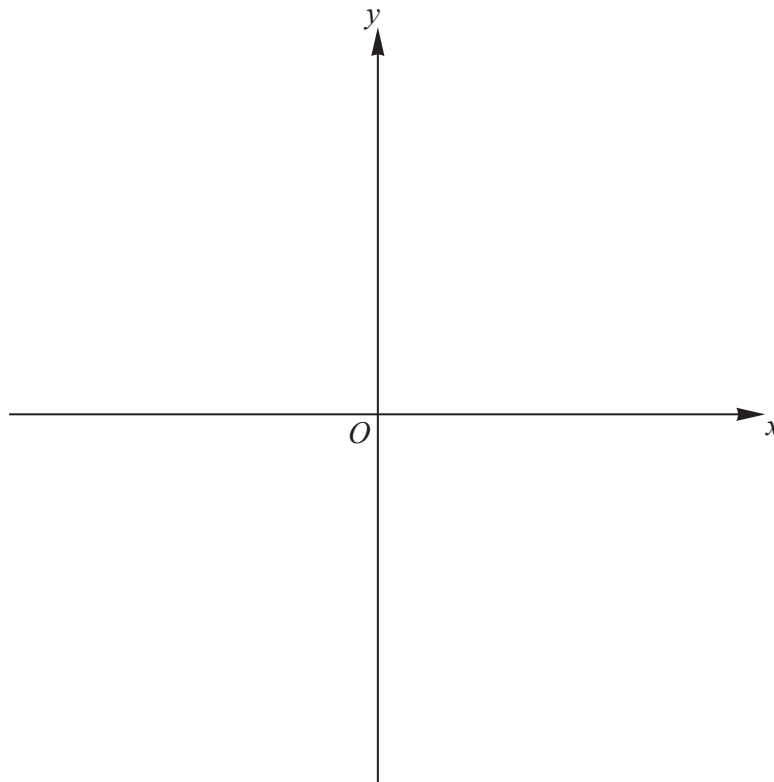
7 The bearing of  $P$  from  $Q$  is  $110^\circ$ .

Find the bearing of  $Q$  from  $P$ .

..... [2]

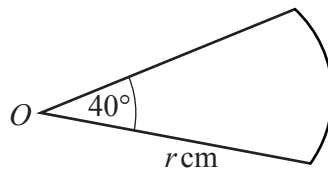
5

- 8 On the diagram, sketch the graph of  $y = \frac{1}{x}$ .



[2]

9

NOT TO  
SCALE

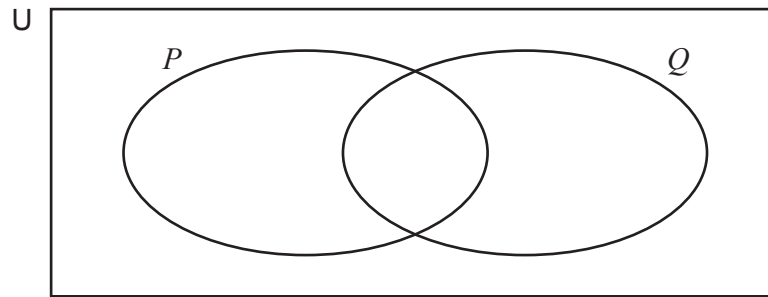
The diagram shows an arc of a circle, centre  $O$ , radius  $r$  cm.  
The length of the arc is  $k\pi r$  cm.

Find the value of  $k$ .

Give your answer as a fraction in its simplest form.

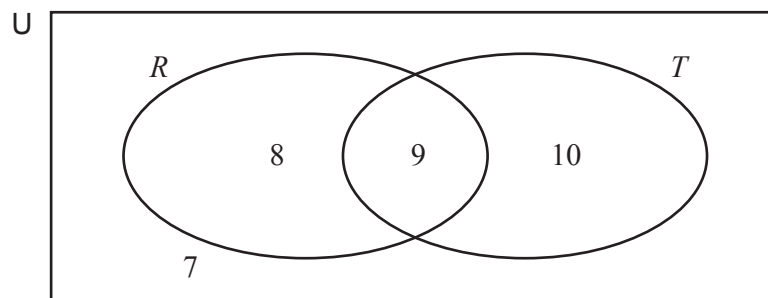
$k = \dots\dots\dots$  [2]

10 (a) Shade the region  $(P \cup Q)'$ .



[1]

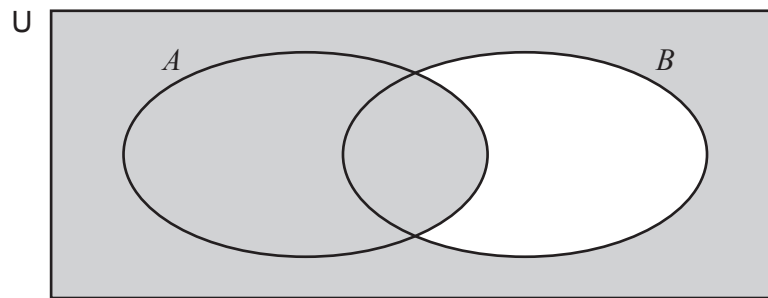
(b) The Venn diagram shows the number of elements in each region.



Find  $n(R \cap T')$ .

..... [1]

(c) Use set notation to describe the shaded region.



..... [1]

11  $y = \frac{w^2}{2}$

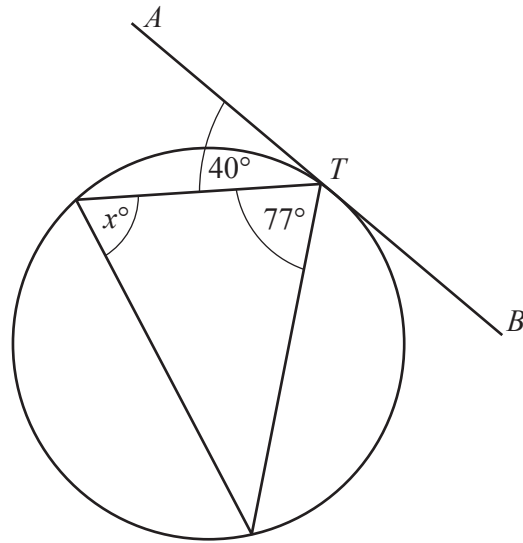
Rearrange the formula to make  $w$  the subject.

$w = \dots\dots\dots$  [1]

12 Work out the value of  $32^{\frac{2}{5}}$ .

$\dots\dots\dots$  [1]

13



NOT TO SCALE

$AB$  is a tangent to the circle at  $T$ .

Find the value of  $x$ .

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

14 Simplify.

$$\sqrt{125} + \sqrt{80}$$

$\dots\dots\dots$  [2]



15 Solve.

$$\frac{8-x}{3} = \frac{x+1}{2}$$

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

16 Factorise.

$$3x + 6 - 2xy - 4y$$

$$\dots\dots\dots [2]$$

17  $3^x = 27^{x+2}$

Find the value of  $x$ .

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

18 Simplify.

$$\frac{w^2 - 9}{2w^2 + 5w - 3}$$

..... [4]

19  $\log 48 + \log 18 - 2 \log 24 = \log t$

Find the value of  $t$ .

$t =$  ..... [3]

20             $\tan x = k$              $0^\circ < x < 90^\circ$

Find, in terms of  $k$ ,

(a)  $\tan(180^\circ - x)$ ,

..... [1]

(b)  $\tan(90^\circ - x)$ .

..... [1]

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