

CANDIDATE  
NAME

--

CENTRE  
NUMBER

--	--	--	--	--

CANDIDATE  
NUMBER

--	--	--	--



**CAMBRIDGE INTERNATIONAL MATHEMATICS**

**0607/22**

Paper 2 (Extended)

**May/June 2018**

**45 minutes**

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

Do not use staples, paper clips, glue or correction fluid.

You may use an HB pencil for any diagrams or graphs.

**DO NOT WRITE IN ANY BARCODES.**

Answer **all** the questions.

**CALCULATORS MUST NOT BE USED IN THIS PAPER.**

All answers should be given in their simplest form.

You must show all the relevant working to gain full marks and you will be given marks for correct methods even if your answer is incorrect.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total number of marks for this paper is 40.

This document consists of **8** printed pages.

## 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  $l$ .  $A = \pi rl$

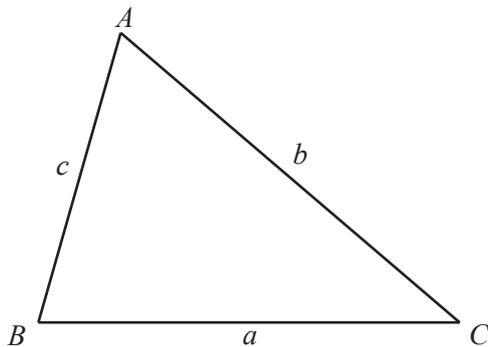
Curved surface area,  $A$ , of sphere of radius  $r$ .  $A = 4\pi r^2$

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



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

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

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

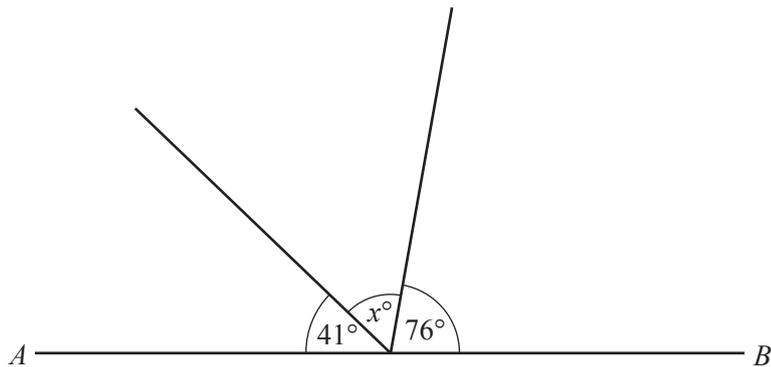
Answer **all** the questions.

- 1 A quadrilateral has exactly one pair of parallel sides.

Write down the mathematical name for this quadrilateral.

..... [1]

- 2



NOT TO SCALE

$AB$  is a straight line.

Find the value of  $x$ .

$x =$  ..... [1]

- 3 A bag contains 2 blue balls, 3 red balls and 5 green balls only. One ball is chosen at random.

Find the probability that this ball is red.

..... [1]

- 4 Write down a prime number between 60 and 70.

..... [1]

5 Solve.

$$7x + 9 = 5x + 17$$

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

6 Write 36 as a product of prime factors.

\dots\dots\dots [2]

7 Solve.

$$3x + 7 < 1$$

\dots\dots\dots [2]

8 Point  $A$  has co-ordinates  $(2, 12)$ . Point  $B$  has co-ordinates  $(4, 2)$ .

Find the co-ordinates of the midpoint of  $AB$ .

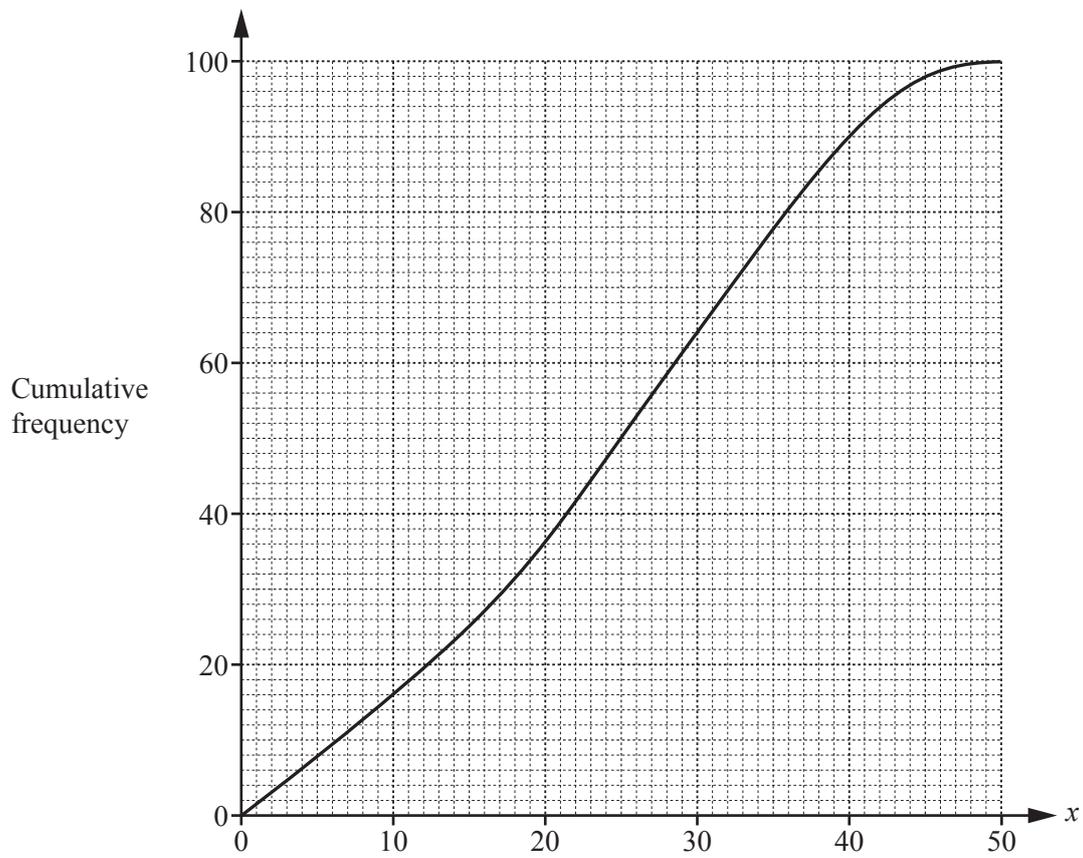
(\dots\dots\dots, \dots\dots\dots) [2]

9 Work out.

$$4\frac{2}{5} - 1\frac{2}{3}$$

..... [3]

10



Use the cumulative frequency curve to estimate the inter-quartile range.

..... [2]

11 Here are the first four terms of a sequence.

13    9    5    1

(a) Write down the next term.

..... [1]

(b) Find an expression, in terms of  $n$ , for the  $n$ th term.

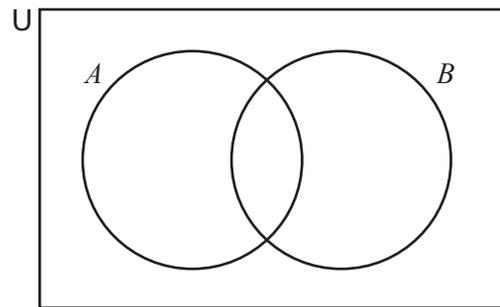
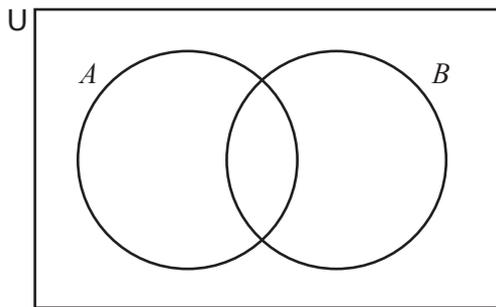
..... [2]

12 Simplify.

$$\sqrt{75} - \sqrt{12} + \sqrt{27}$$

..... [2]

13 Shade the given sets in each of these diagrams.



[2]

- 14 Point  $A$  has co-ordinates  $(2, 3)$ . Point  $B$  has co-ordinates  $(4, 11)$ .

Find the equation of the line  $AB$ .

Give your answer in the form  $y = mx + c$ .

$y = \dots\dots\dots$  [3]

- 15 Expand the brackets and simplify.

$$(3x - 5y)(5x - 3y)$$

$\dots\dots\dots$  [3]

- 16 A factory makes soft centre chocolates and hard centre chocolates only.  
The probability that a chocolate chosen at random has a hard centre is 0.6.  
Three chocolates are chosen at random.

Find the probability they are all soft centre chocolates.

$\dots\dots\dots$  [3]

**Questions 17 and 18 are printed on the next page.**

17 Factorise.

$$4x^2 - 4xy - 3y^2$$

..... [3]

18 Write as a single fraction in its simplest form.

$$\frac{n+1}{n-1} - \frac{n-1}{n+1}$$

..... [4]

---

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.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at [www.cie.org.uk](http://www.cie.org.uk) after the live examination series.

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