Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education (9–1)

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

MATHEMATICS								**0626/03**

Paper 3 (Core)								**May/June 2017**

								1 hour 30 minutes

Candidates answer on the Question Paper.

Additional Materials:		Geometrical instruments
						Tracing paper (optional)

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.
You may use an HB pencil for any diagrams and graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
CALCULATORS MAY NOT BE USED IN THIS PAPER.
If working is required for any question it must be shown below that question.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 84.

This document consists of **16** printed pages.

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International Examinations

[Turn over

1   Here is a list of numbers.

$$\frac{3}{7} \qquad\qquad 2.5 \qquad\qquad \frac{9}{5} \qquad\qquad -3 \qquad\qquad \sqrt{5}$$

Write down the number from the list that is an integer.

.... [1]

2   Write 0.08 as a fraction in its lowest terms.

.... [2]

3   A cup of coffee costs £2.95.
     A slice of cake costs £1.49.
     Halima buys two cups of coffee and one slice of cake.

     Work out how much Halima pays altogether.

£ .... [2]

4   Here is a list of 5 numbers.

                    12   8   6   14   15

     Work out the mean.

.... [2]

3

5 The pictogram shows the number of hours Ali works each day of his working week.

Monday	⊕ ⊕ ⊕
Tuesday	⊕ ◔
Wednesday	⊕ ⊕ ⊕ ◔
Thursday	⊕ ⊕
Friday	⊕ ⊕ ⊕ ⊕ ◗
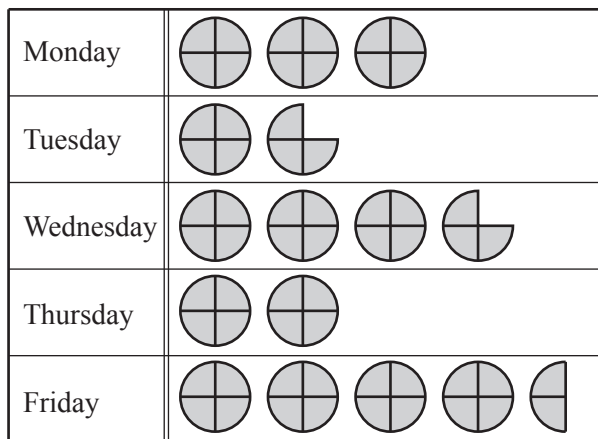
Key: ⊕ represents 2 hours

(a) How many hours does Ali work on Tuesday?

.... hours [1]

(b) Ali earns £390 in total for this working week.

(i) How many pounds does Ali earn for working one hour?

£ .... [3]

(ii) What assumption have you made in your answer to **part (b)(i)**?

.... [1]

4

6   The table shows information about savings accounts.

Bank	Interest rate (%)	Minimum Savings	ATM card
Arrow	0.40	£1000	No
Bridge	0.25	£1	Yes
Credit City	0.32	£100	Yes
DRS	0.30	£1	No
Every	0.60	£5000	Yes

Mary wants to invest £1500 in one of these accounts.
She wants the highest possible interest rate with an ATM card.

Which bank should Mary choose?

.... [1]

7   Two fair 4-sided spinners, each numbered 1 to 4, are spun together.
The two scores are added.

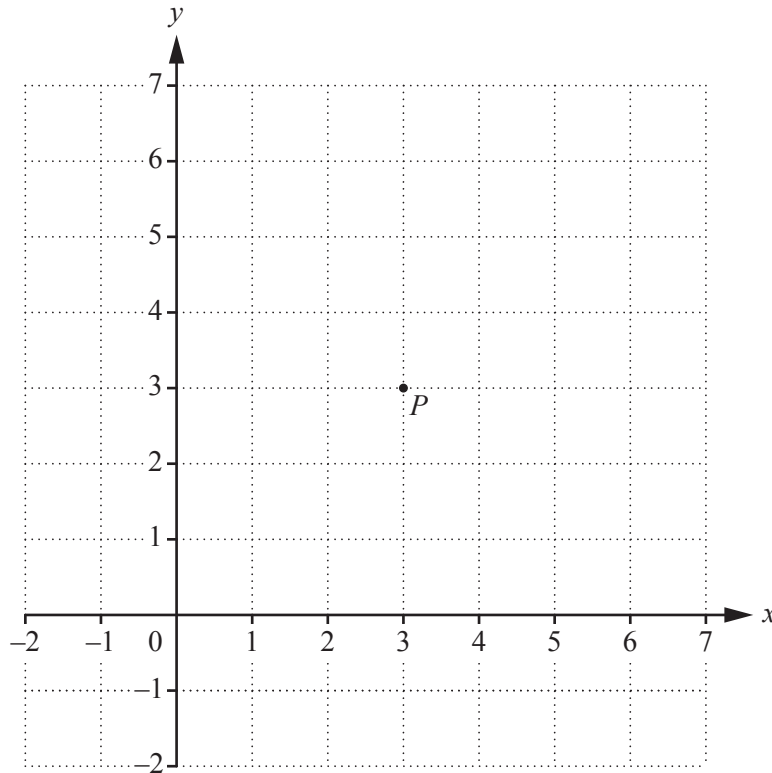(a)   Complete the diagram to show all the possible outcomes.

4	5			8
3	4		6	
2	3	4		
1	2	3	4	5
+	1	2	3	4

Spinner 2 (left label)

Spinner 1

[1]

(b)   Find the probability that the sum is an **odd** number less than 5.

.... [2]

8

(a) On the grid, draw accurately the circle with centre P and radius 3 cm. [1]

(b) On the grid, mark and label the point Q at (0, 3). [1]

(c) QR is a diameter of the circle with centre P.

Write down the co-ordinates of the point R.

(........................ , ...) [1]

9 The probability that Sam sleeps through his morning alarm is 0.4.

What is the probability that Sam does **not** sleep through his morning alarm?

.... [1]

10 The manager at Matt's Motors records how many of each model of car he sells in a month.
He uses an average from this data to find his best-selling model.

Which average does he use? Explain your answer.

.... because ....

.... [1]

6

11 Work out.

(a) $5 - {}^-6$

.... [1]

(b) $-32 \div 8$

.... [1]

(c) $8 - 3 \times 1.5$

.... [2]

12 The diagram shows the position of three ships, *A*, *B* and *C*.
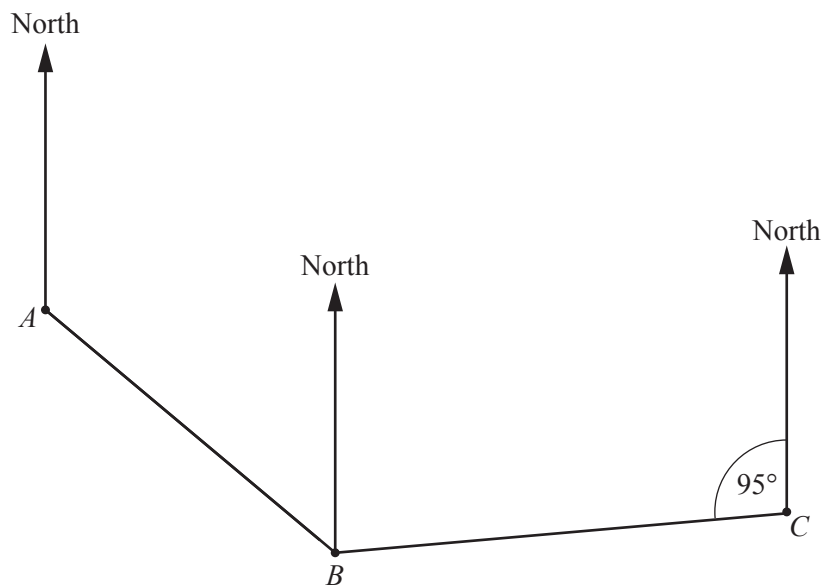
(a) Measure and write down the bearing of *B* from *A*.

.... [1]

(b) Explain why the bearing of *B* from *C* is **not** 095°.

.... [1]

13 (a)
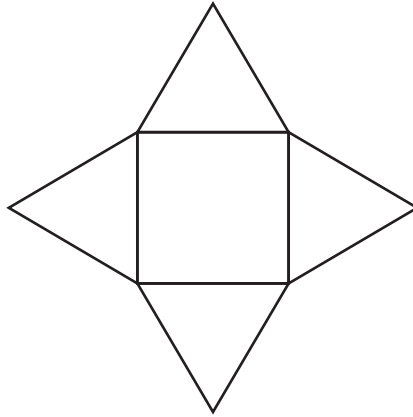
The diagram shows the net of a solid.

Write down the name of this solid.

.... [1]

(b) The base of a cube is a 3 cm by 3 cm square.

Work out the volume of this cube.

.... cm^3 [2]

14 Elora has £640.

She spends $\frac{3}{8}$ of this money on a holiday.

After paying for the holiday, she spends $\frac{1}{5}$ of the money she has left on new clothes.

How much does Elora spend on new clothes?

£ .... [4]

15 A triangle has a base of length 10 cm and an area of 45 cm^2.

Work out the height of this triangle.

.... cm [2]

16 **(a)** Sean works out.

$$\frac{8}{9} - \frac{5}{8} = \frac{3}{1} = 3$$

Explain why Sean's answer is incorrect.

....

.... [1]

(b) Work out the correct answer to $\frac{8}{9} - \frac{5}{8}$.

.... [2]

17 Jenny makes onion soup for 6 people.
She has an old recipe for 4 people that uses Imperial measures.
Jenny has measuring equipment that uses the metric system.
Jenny uses this conversion table.

Imperial	Metric
1 ounce	30 g
1 pound	480 g
1 pint	600 ml

Complete the table below to show how much of each ingredient Jenny uses.

Ingredients	Imperial units for 4 people	Metric units for 6 people
Onions	1 pound	
Butter	4 ounces	
Stock	2 pints	

[4]

18 By rounding each number to 1 significant figure, estimate the value of

$$\frac{58.6 \times 0.333}{2.98}.$$

.... [2]

19

NOT TO SCALE
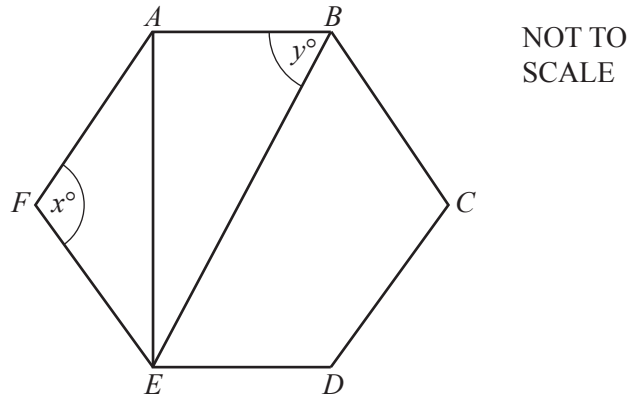
The diagram shows a regular hexagon, *ABCDEF*.

(a) Work out the value of *x* and the value of *y*.

x = ...

y = ... [3]

(b) Rohan makes a scale drawing of this hexagon.

He says:

I know, without making a scale drawing and measuring, that *AE* is shorter than *BE*.

Using triangle *ABE*, explain why Rohan is correct.

....

.... [1]

20 (a) Solve this inequality.

$$x + 7 > 3$$

.... [1]

(b) Represent your answer to **part (a)** on the number line.

[1]

21 Work out.

$$\frac{6 \times 10^4}{2 \times 10^8}$$

Give your answer in standard form.

.... [2]

22 Find the reciprocal of $2\frac{1}{4}$.

.... [2]

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23 Evaluate.

(a) $\sqrt{10^6}$

.... [2]

(b) $5^{33} \times 5^{-34}$

.... [1]

24 Make x the subject of this formula.

$$y = wx - z$$

.... [2]

25 **Using a straight edge and compasses only**, construct the perpendicular bisector of the line AB.
Leave in all your construction arcs.

A

B
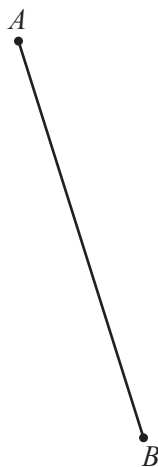
[2]

26   Find the equation of the straight line that passes through $(0, 5)$ and $(3, -1)$.
Give your answer in the form $y = mx + c$.

$y =$ .... [3]

27   **(a)**   Work out.

$$4\begin{pmatrix} 3 \\ -1 \end{pmatrix} - \begin{pmatrix} -5 \\ 2 \end{pmatrix}$$

$$\begin{pmatrix} \\ \end{pmatrix}_{[2]}$$

(b) $$a\begin{pmatrix} 4 \\ 0 \end{pmatrix} + b\begin{pmatrix} -2 \\ 3 \end{pmatrix} = \begin{pmatrix} -6 \\ 12 \end{pmatrix}$$

Find the value of a and the value of b.

$a =$ ....

$b =$ .... [2]

28 Solve the simultaneous equations.

$$3x - 2y = 18$$
$$5x + 3y = 11$$

$x = $ ....

$y = $ .... [4]

29　The diagram shows points *A* and *B*.

•
A　　　　　　　　　　　　　　　　•
　　　　　　　　　　　　　　　　　B
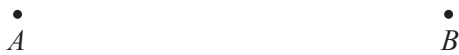
(a)　Construct the locus of points that are 3.5 cm from *A*.　　　　　　　[1]

(b)　Construct and shade the region which is

•　　less than 3.5 cm from *A*

and

•　　more than 7 cm from *B*.　　　　　　　　　　　　　　　　[2]

Questions 30 and 31 are printed on the next page.

30 **(a)** Factorise completely.

$$5xy - 20y^2$$

.... [2]

(b) **(i)** Factorise.

$$w^2 - 1$$

.... [1]

(ii) Use your answer to **part (b)(i)** to work out $99^2 - 1$.

.... [2]

31 Solve the equation.

$$x^2 - 2x - 48 = 0$$

$x = $ .... or $x = $ .... [3]