CANDIDATE NAME	
CLASS / GROUP	
DATE	

MATHEMATICS

Paper 1 Non-calculator (Core)

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 and class 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 show all your working in the booklet.
- 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 for each question or part question is shown in brackets [ ].

INFORMATION

- The total mark for this paper is 80.
- The number of marks for each question or part question is shown in brackets [ ].
- This document has 16 pages, including a list of formulas.

For teacher use

Total
/ 80

Questions adapted from Cambridge IGCSE 0580 past papers (© UCLES) for classroom practice.
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List of formulas (Core)

Area, A, of triangle, base b, height h.	$\mathbf{A = \frac{1}{2}bh}$
Area, A, of circle of radius r.	$\mathbf{A = \pi r^2}$
Circumference, C, of circle of radius r.	$\mathbf{C = 2\pi r}$
Curved surface area, A, of cylinder of radius r, height h.	$\mathbf{A = 2\pi rh}$
Curved surface area, A, of cone of radius r, sloping edge l.	$\mathbf{A = \pi rl}$
Surface area, A, of sphere of radius r.	$\mathbf{A = 4\pi r^2}$
Volume, V, of prism, cross-sectional area A, length l.	$\mathbf{V = Al}$
Volume, V, of pyramid, base area A, height h.	$\mathbf{V = \frac{1}{3}Ah}$
Volume, V, of cylinder of radius r, height h.	$\mathbf{V = \pi r^2 h}$
Volume, V, of cone of radius r, height h.	$\mathbf{V = \frac{1}{3}\pi r^2 h}$
Volume, V, of sphere of radius r.	$\mathbf{V = (4/3)\pi r^3}$
Area, A, of parallelogram, base b, perpendicular height h.	$\mathbf{A = bh}$
Area, A, of trapezium, parallel sides a and b, height h.	$\mathbf{A = \frac{1}{2}(a + b)h}$

1 **(a)** Write down in figures the number twenty thousand three hundred and seventy six.

Answer(a) ..... [1]

(b) Write your answer to **part (a)** correct to the nearest hundred.

Answer(b) ..... [1]

---

2 For an equilateral triangle, write down

(a) the number of lines of symmetry,

Answer(a) ..... [1]

(b) the order of rotational symmetry.

Answer(b) ..... [1]

---

3 Mark and Naomi share \$600 in the ratio Mark : Naomi = 5 : 1.

Calculate how much money Naomi receives.

Answer \$ ..... [2]

---

4 The scale on a map is 1 : 20 000.

Calculate the actual distance between two points which are 2.7 cm apart on the map.
Give your answer in kilometres.

Answer ..... km [2]

---

5 **(a)** Find m when $4^m \times 4^2 = 4^{12}$.

Answer(a) $m =$ ..... [1]

(b) Find p when $6^p \div 6^7 = 6^2$.

Answer(b) $p =$ ..... [1]

---

6 Write down the number which is 3.6 less than -4.7 .

Answer ..... [1]

---

7 Two quantities c and d are connected by the formula $c = 2d + 30$.
Find c when $d = -100$.

Answer ..... [1]

---

8 210 211 212 213 214 215 216

From the list of numbers, find

(a) a prime number,

Answer(a) ..... [1]

(b) a cube number.

Answer(b) ..... [1]

---

9 Write down the next term in each of the following sequences.

(a) 8.2, 6.2, 4.2, 2.2, 0.2, …

Answer(a) ..... [1]

(b) 1, 3, 6, 10, 15, …

Answer(b) ..... [1]

10



For the diagram, write down

(a) the order of rotational symmetry,

Answer(a) ..... [1]

(b) the number of lines of symmetry.

Answer(b) ..... [1]

11 Martha divides \$240 between spending and saving in the ratio

spending : saving = 7 : 8 .

Calculate the amount Martha has for spending.

Answer \$ ..... [2]

12 Show that $1\frac{5}{9} \div 1\frac{7}{9} = \frac{7}{8}$.

Write down all the steps in your working.

Answer

[2]

---

13 $\frac{3}{5} < p < \frac{2}{3}$

Which of the following could be a value of p?

$\frac{16}{27}$ 0.67 60% $(0.8)^2$ $\sqrt{\frac{4}{9}}$

Answer ..... [2]

---

14 A bus leaves a port every 15 minutes, starting at 09 00.
The last bus leaves at 17 30.

How many times does a bus leave the port during one day?

Answer ..... [2]

---

15 The table shows the maximum daily temperatures during one week in Punta Arenas.

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
2°C	3°C	1°C	2.5°C	–1.5°C	1°C	2°C

(a) By how many degrees did the maximum temperature change between Thursday and Friday?

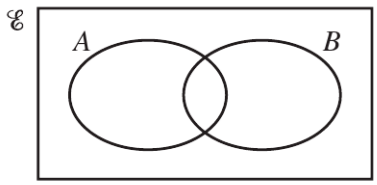
Answer (a) ..... [1]

(b) What is the difference between the greatest and the least of these temperatures?

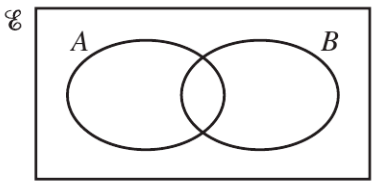
Answer (b) ..... [1]

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16 Shade the required region on each Venn diagram.



$A \cup B'$



$(A \cap B)'$

[2]

17 From the list of numbers $\frac{22}{7}$, π, $\sqrt{14}$, $\sqrt{16}$, 27.4, $\frac{65}{13}$ write down

(a) one integer,

Answer(a) ..... [1]

(b) one irrational number.

Answer(b) ..... [1]

---

18 **(a)** Write 1738.279 correct to 1 decimal place.

Answer(a) ..... [1]

(b) Write 28 700 in standard form.

Answer(b) ..... [1]

(c) The mass of a ten-pin bowling ball is 7 kg to the nearest kilogram.

Write down the lower bound of the mass of the ball.

Answer(c) ..... kg [1]

---

19 **(a)** Find the value of x when $\frac{18}{24} = \frac{27}{x}$.

Answer(a) $x =$ ..... [1]

(b) Show that $\frac{2}{3} \div 1\frac{1}{6} = \frac{4}{7}$.

Write down all the steps in your working.

Answer(b)

[2]

---

20 **(a)** A drinking glass contains 55 cl of water.
Write 55 cl in litres.

Answer(a) ..... litres [1]

(b) The mass of grain in a sack is 35 kg.
The grain is divided equally into 140 bags.

Calculate the mass of grain in each bag.
Give your answer in grams.

Answer(b) ..... g [2]

---

21 **(a)** Write 67.499 correct to the nearest integer.

Answer(a) ..... [1]

(b) Write 0.003040506 correct to 3 significant figures.

Answer(b) ..... [1]

(c) $d = 56.4$, correct to 1 decimal place.

Write down the lower bound of d.

Answer(c) ..... [1]

---

22 For each of the following sequences, write down the next term.

(a) 2, 3, 5, 8, 13, …

Answer(a) ..... [1]

(b) x^6, $6x^5$, $30x^4$, $120x^3$, …

Answer(b) ..... [1]

(c) 2, 6, 18, 54, 162, ...

Answer(c) ..... [1]

---

23 Complete this table of squares and cubes.
The numbers are not in sequence.

Number	Square	Cube
3	9	27
.....	121	.....
.....	.....	2744
.....	.....	–343

[3]

---

24 In 2004 Colin had a salary of $7200.

(a) This was an increase of 20% on his salary in 2002.
Calculate his salary in 2002.

Answer(a)$ ..... [2]

(b) In 2006 his salary increased to $8100.
Calculate the percentage increase from 2004 to 2006.

Answer(b) ..... % [2]

---

25 **(a)** The table shows part of a railway timetable.

Peartree Station	arrival time	12 58	13 56	14 54	15 52
	departure time	13 07	14 05	15 03	16 01

(i) Each train waits the same number of minutes at Peartree Station.

Write down how many minutes each train waits.

Answer(a)(i) ..... min [1]

(ii) Janine is at Peartree Station at 3 pm.

At what time does the next train depart?

Answer(a)(ii) ..... [1]

(b) The average temperature each month in Moscow and Helsinki is recorded.
The table shows this information from January to June.

	January	February	March	April	May	June
Temperature in Moscow (°C)	–16	–14	–8	1	8	11
Temperature in Helsinki (°C)	–9	–10	–7	–1	4	10

(i) Find the difference in temperature between Moscow and Helsinki in **January**.

Answer(b)(i) ..... °C [1]

(ii) Find the increase in temperature in Helsinki from March to June.

Answer(b)(ii) ..... °C [1]

26 **(a)** Complete the list to show all the factors of 18.

1, 2, ..., ..., ..., 18 [2]

(b) Write down the prime factors of 18.

Answer(b) ..... [1]

(c) Write down all the multiples of 18 between 50 and 100.

Answer(c) ..... [1]

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27 Using integers between 10 and 30, write down

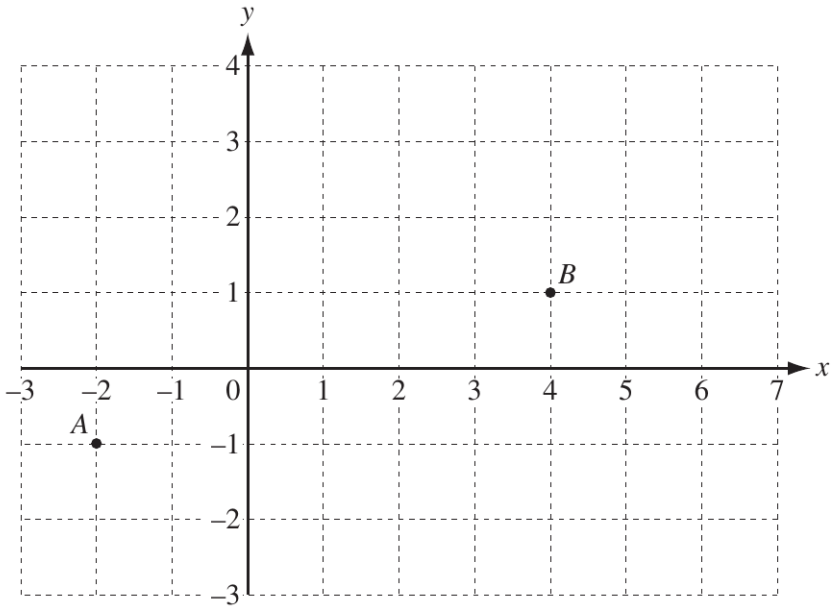
(a) an odd multiple of 7,

Answer(a) ..... [1]

(b) a cube number.

Answer(b) ..... [1]

28



(a) Write down the vector $\overrightarrow{AB}$.

Answer(a) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

(b) $\overrightarrow{BC} = \begin{pmatrix} -3 \\ 1 \end{pmatrix}$

Mark the point C on the grid. [1]

(c) Work out

(i) $\begin{pmatrix} -3 \\ 1 \end{pmatrix} + \begin{pmatrix} 7 \\ -4 \end{pmatrix}$,

Answer(c)(i) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

(ii) $4 \times \begin{pmatrix} -3 \\ 1 \end{pmatrix}$.

Answer(c)(ii) $\begin{pmatrix} \\ \end{pmatrix}$ [1]

29 At a ski resort the temperature, in °C, was measured every 4 hours during one day.

The results were –12°, –13°, –10°, 4°, 4°, –6°.

(a) Find the difference between the highest and the lowest of these temperatures.

Answer(a) ..... °C [1]

(b) Find

(i) the mean,

Answer(b)(i) ..... °C [2]

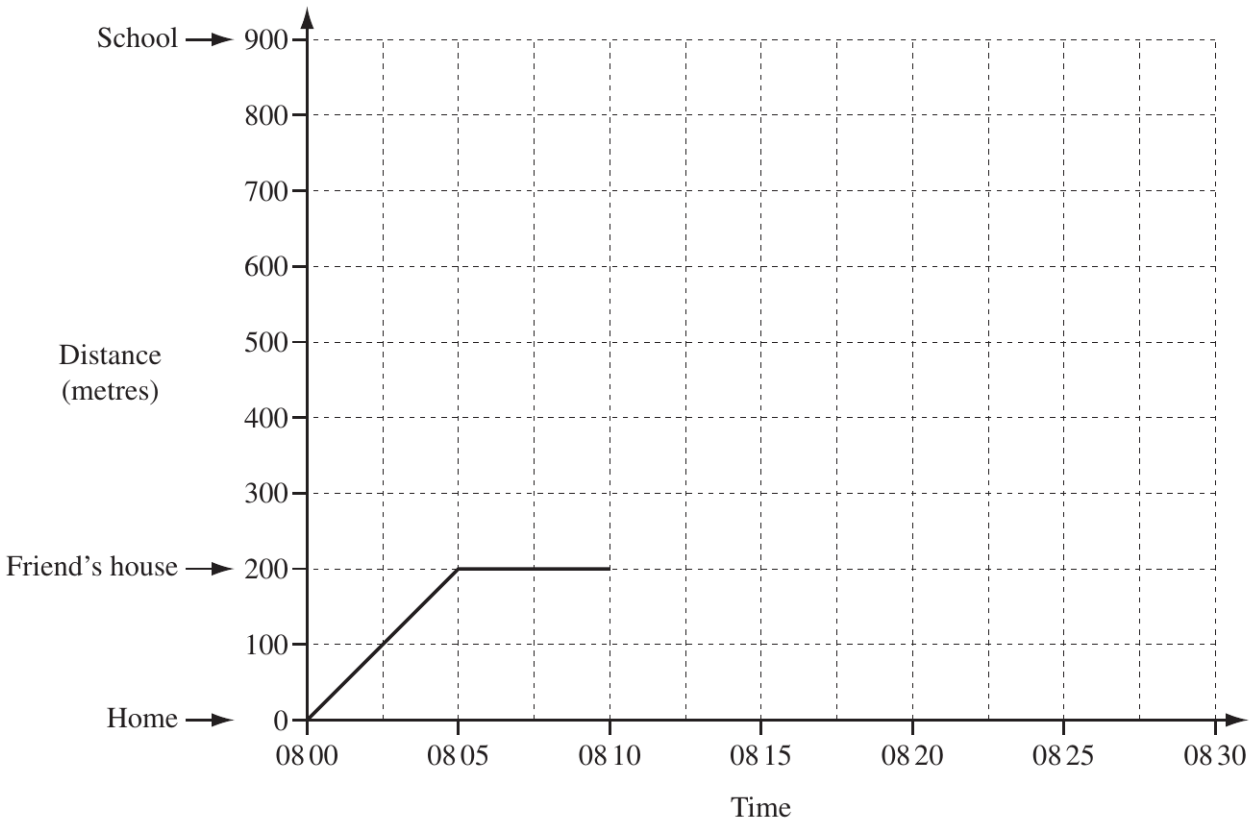
(ii) the median,

Answer(b)(ii) ..... °C [2]

(iii) the mode.

Answer(b)(iii) ..... °C [1]

30



The graph shows part of Ali's journey from home to his school.
The school is 900 m from his home.
He walks 200 m to his friend's house and waits there.
He then takes 20 minutes to walk with his friend to their school.

(a) Complete the travel graph showing Ali's journey. [1]

(b) How long does he wait at his friend's house?

Answer(b) ..... min [1]

(c) Calculate the average speed for Ali's complete journey from home to his school.
Give your answer in **kilometres per hour**.

Answer(c) ..... km/h [4]

END OF PAPER

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