



Cambridge  
Checkpoint

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
Cambridge Checkpoint

CANDIDATE  
NAME

CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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**MATHEMATICS**

1112/01

Paper 1

April 2013

1 hour

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.

You may use a soft pencil for any diagrams or graphs.

Do not use staples, paperclips, highlighters, glue or correction fluid.

**DO NOT WRITE IN ANY BARCODES.**

Answer all questions.

**NO CALCULATOR ALLOWED.**

You should show all your working in the booklet.

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 50.

**For Examiner's Use**

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15	
16	
<b>Total</b>	

This document consists of 15 printed pages and 1 blank page.

[Turn over





1 Put a ring around all the numbers that are exactly divisible by 9

3      56      72      93      146      198

[1]

2 Jamie has 60 counters.

He gives  $\frac{1}{3}$  of his counters to Sam and  $\frac{1}{4}$  to Sally.

How many counters does Jamie have left?

..... [2]

3 Erik makes a pattern with tiles.  
He records how many tiles are used for each pattern number.

Pattern number ( $p$ )	1	2	3	4	5		
Number of tiles ( $t$ )	1	8	15	22			50

(a) Complete the table.

[2]

(b) Erik finds a rule connecting the pattern number and the number of tiles.  
Put a ring around the correct rule.

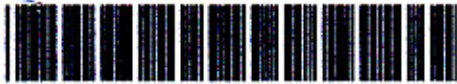
$t = p + 7$

$t = 6p - 1$

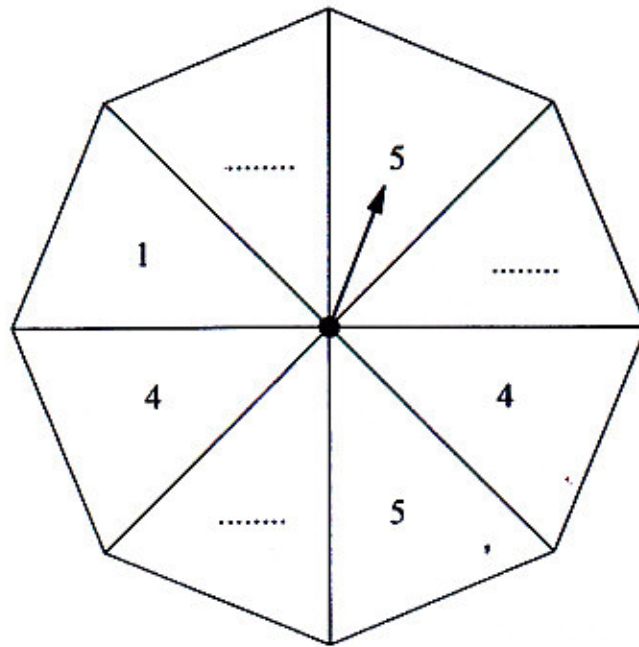
$t = 7p + 1$

$t = 7p - 6$

[1]



4 The diagram shows a fair spinner with 8 equal sections.



Each section has a number on it, some of which are shown.

You are told that

- The only numbers on the spinner are 1, 4 and 5.
- The probability of the spinner landing on a section numbered with a 1 is  $\frac{1}{4}$
- The spinner is equally likely to land on an odd number as it is to land on an even number.

Complete the numbering on the spinner.

[2]

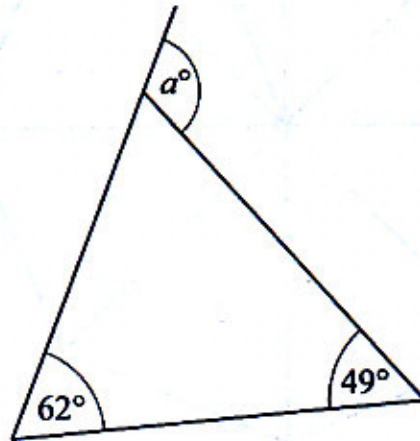




5 Write down the value of  $\sqrt{196}$

..... [1]

6 (a) Work out the value of  $a$ .



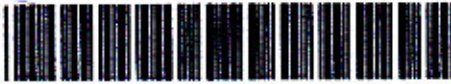
NOT TO SCALE

$a =$  .....  $^\circ$  [1]

(b) Give a geometric reason for your answer.

.....  
 ..... [1]





7 Work out the temperature when

(a) the temperature is  $6^{\circ}\text{C}$  and it falls by  $13^{\circ}\text{C}$ , .....  $^{\circ}\text{C}$  [1]

(b) the temperature is  $-2^{\circ}\text{C}$  and it falls by  $8^{\circ}\text{C}$ . .....  $^{\circ}\text{C}$  [1]

8 Martin is playing a game.  
The probability of winning is 0.3

What is the probability of **not** winning?

..... [1]

9 Three students took a test.  
The test was out of 50 marks.

David scored  
38 marks

John scored  
half marks

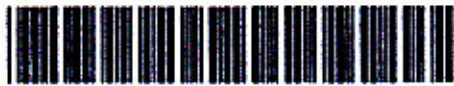
Susan scored  
72%

Who scored the highest?

Show your working.

..... scored the highest

[2]



10 Match each calculation with its answer.

$$0.7 \times 1000$$

7

70

$$70 \times 0.1$$

700

7000

$$700 \div 0.01$$

70 000

[1]

11 This table shows the outcomes from the function  $x \rightarrow 2x + 3$   
Complete the output column of the table.

input	output
1	5
6	
9	
15	33

[1]

12 Look at the following equation.

$$45.6 \div 1.2 = 38$$

Use this information to write down the answers to the following.

(a)  $456 \div 12 =$  .....

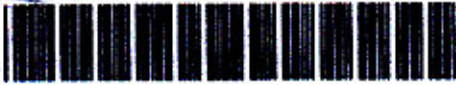
[1]

(b)  $38 \times 1.2 =$  .....

[1]

(c)  $3.8 \times 1.2 =$  .....

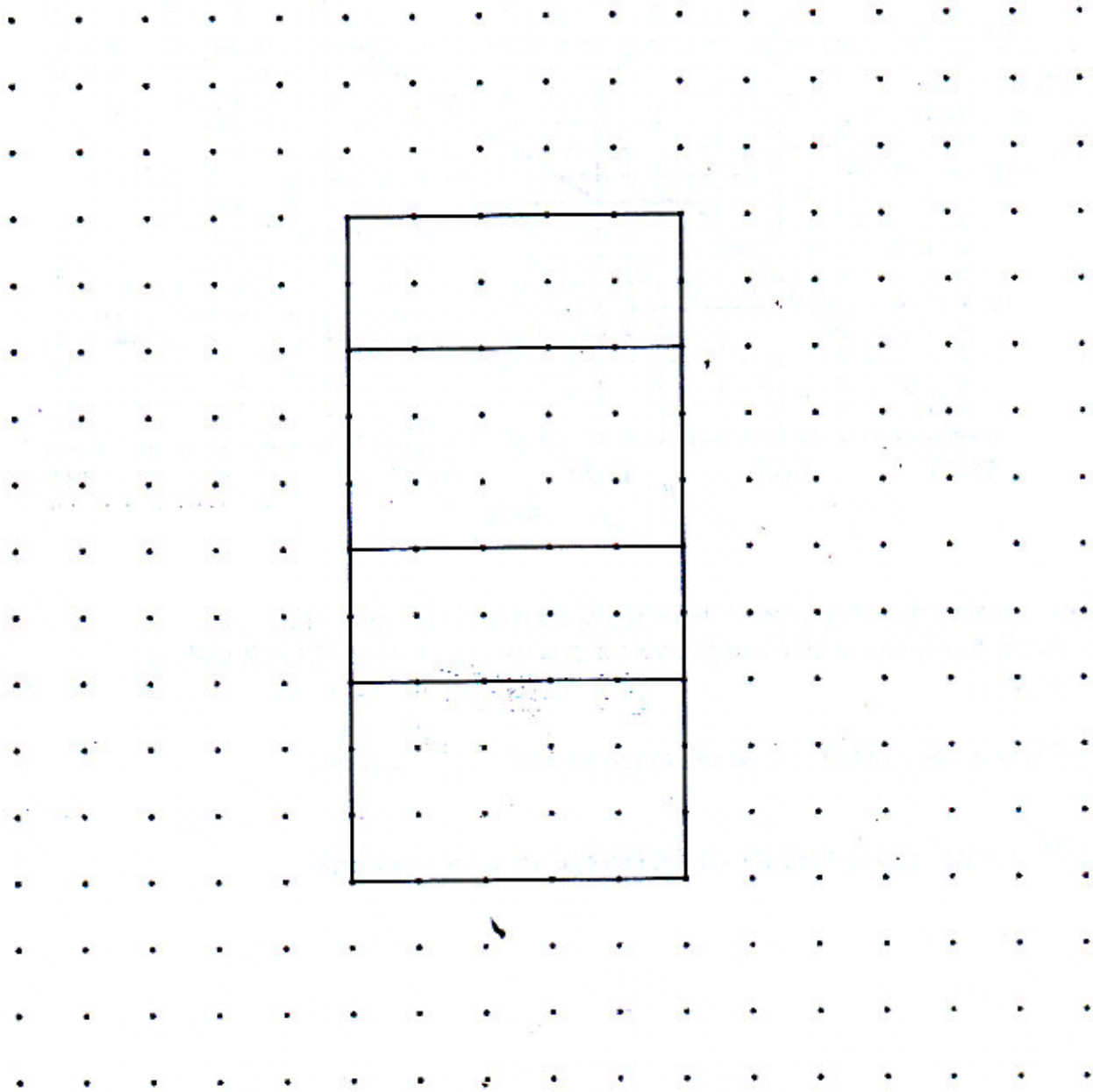
[1]



13 A cuboid has dimensions 2 cm  $\times$  3 cm  $\times$  5 cm.

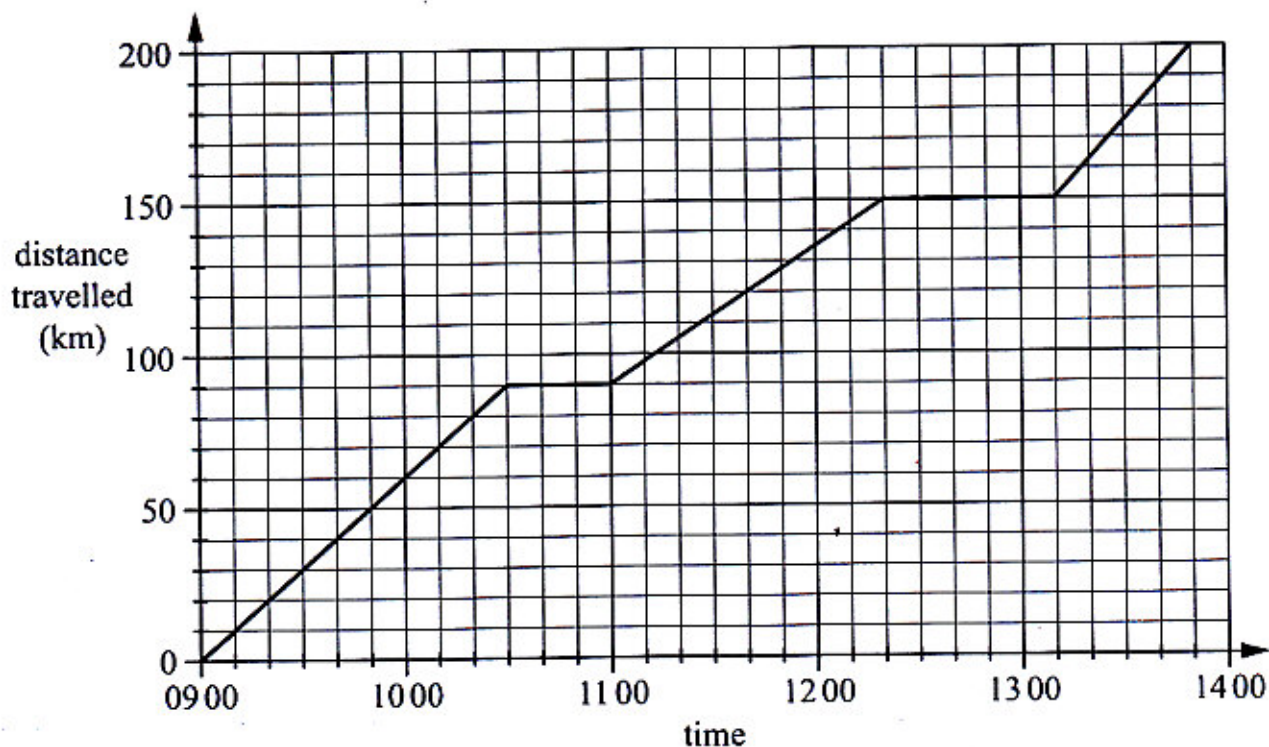
Part of the net of this cuboid is shown on the centimetre square grid.

Complete the net of the cuboid.



[1]

- 14 The travel graph shows Karen's journey between two towns, Springton and Watworth.



George makes the same journey between Springton and Watworth. He leaves Springton at 1000 and travels at a constant speed of 80 km/h without stopping.

- (a) Draw a line on the travel graph to represent George's journey.

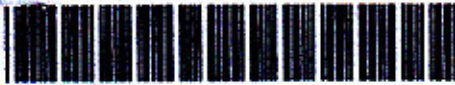
[1]

- (b) How much earlier than Karen did George arrive at Watworth?

.....

[1]





15 Write these numbers in order of size starting with the **smallest**.

$\sqrt{25}$

$3^2$

$\sqrt[3]{64}$

$0.2^2$

.....  
smallest

.....

.....

.....  
largest

[1]

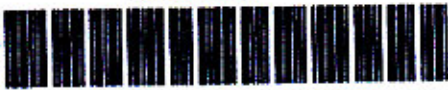
16 Work out

(a)  $1.56 \times 3.6$

..... [2]

(b)  $5.44 \div 1.6$

..... [2]

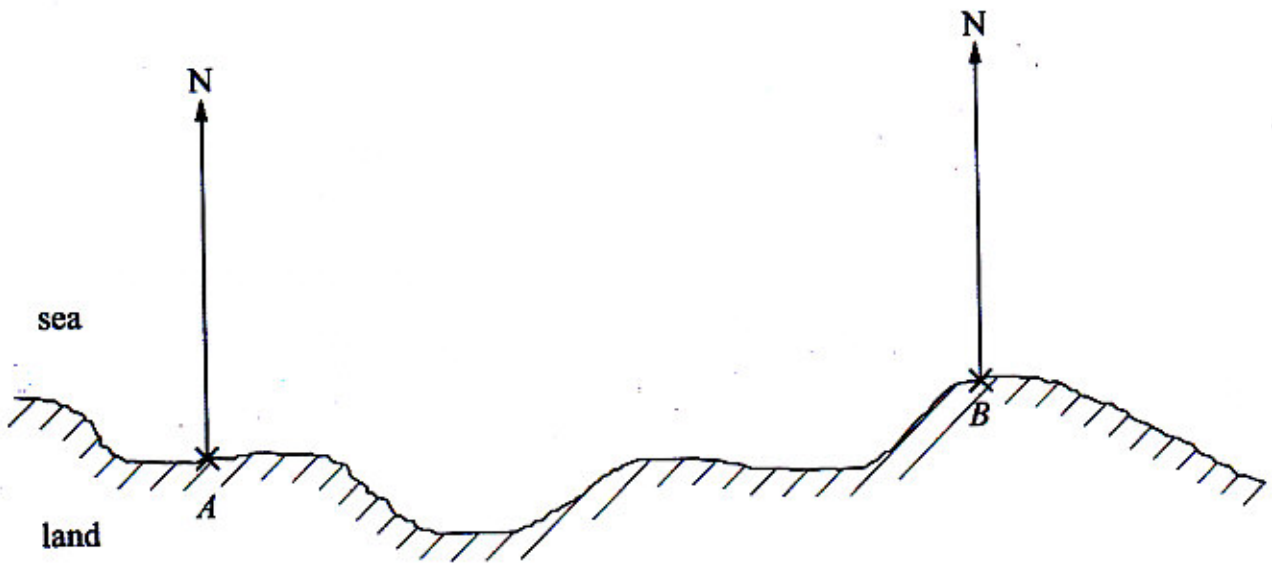


- 17 Ayako and Joshua share 59 sweets between them.  
Ayako has  $n$  sweets.  
Joshua has 3 less sweets than Ayako.

Work out the value of  $n$ .

$n =$  ..... [2]

- 18 The map shows the positions of two beaches,  $A$  and  $B$ .



A boat is on a bearing of  $062^\circ$  from beach  $A$  and on a bearing of  $286^\circ$  from beach  $B$ .

Mark the position of the boat clearly on the map.

[2]

19 Decide whether each of these statements is true or false.

Tick (✓) the correct boxes.

$$9^0 = 0$$

True

False

$$9^3 \times 9^2 = 9^5$$



$$9^8 \div 9^4 = 9^2$$



[1]

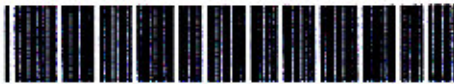
20 Calculate

(a)  $2\frac{2}{3} - 1\frac{3}{4}$

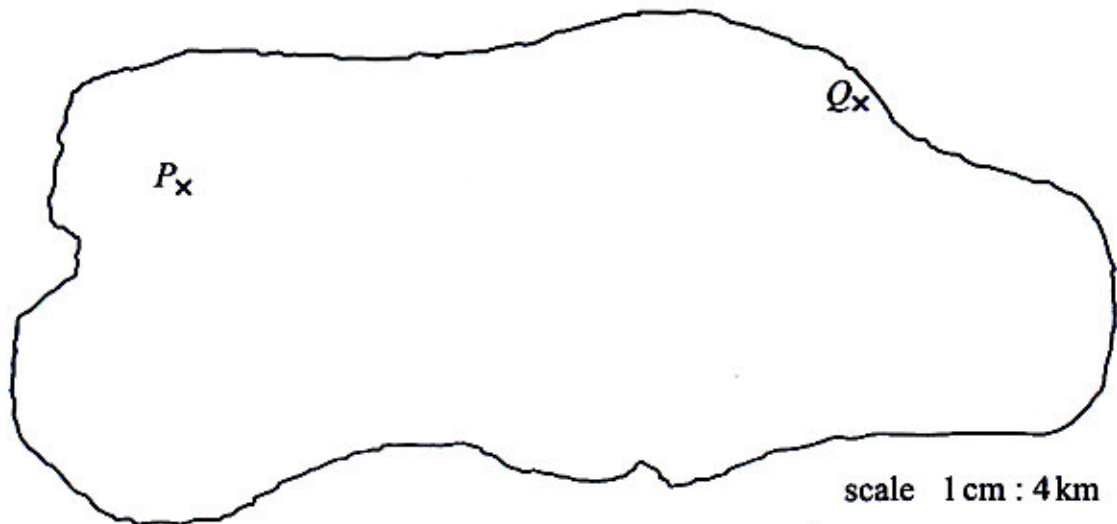
[2]

(b)  $1\frac{1}{3} \times 2\frac{2}{5}$

[2]



- 21 The map shows an island with two towns,  $P$  and  $Q$ .  
The scale of the map is 1 cm : 4 km.



The fire department wants to build a new fire station on the island.

The fire station should be

- no more than 20 km from town  $P$
- no more than 32 km from town  $Q$

Shade the region on the island where the fire station could be built.

[2]

- 22 Work out

(a)  $5 + 2 \times 7$

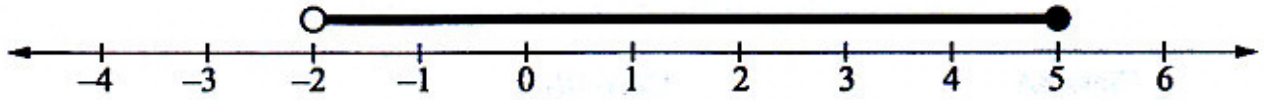
..... [1]

(b)  $4 \times (1 + 3^2)$

..... [1]



23 Here is a number line.



Tick (✓) which of these inequalities is shown on the number line.

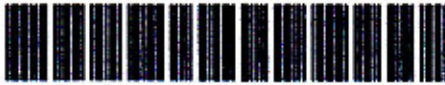
$$-2 \leq n \leq 5$$

$$-2 < n \leq 5$$

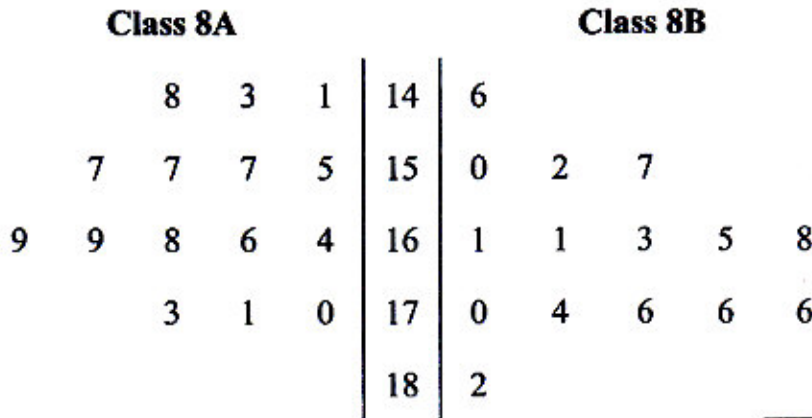
$$-2 \leq n < 5$$

$$5 \geq n < -2$$

[1]



24 The stem and leaf diagram shows the heights, in cm, of the 15 students in class 8A and the 15 students in class 8B.



key: 14|6 = 146 cm  
 1|14 = 141 cm

(a) Find the range of heights of the students in class 8A.

..... cm [1]

(b) Find the median of the heights of the students in class 8B.

..... cm [1]

(c) Give two statements to compare the heights of the students in the two classes.

.....  
 .....  
 ..... [2]



25 Ahmed buys a pack of 20 drinks to sell at the school shop.  
The pack costs \$5.  
He wants to make a 40% profit.



How much should he sell each drink for?

\$ ..... [3]