Cambridge Checkpoint

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
Cambridge Checkpoint

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

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	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
Total	

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

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?

$= 60 - (\frac{1}{3} \times 60) - (\frac{1}{4} \times 60)$

$= 60 - 20 - 15$

$= 25$

25 [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		8
Number of tiles (t)	1	8	15	22	29		50

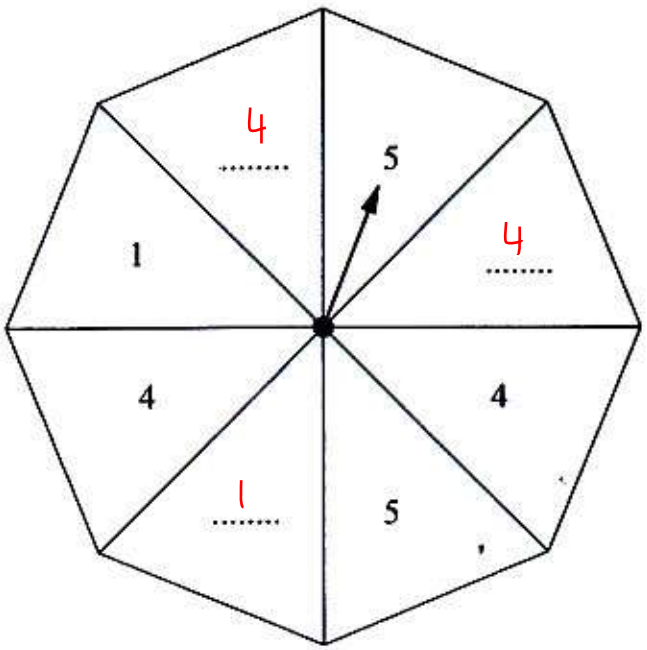
(a) Complete the table. [2]

$50 = 7p - 6$
$56 = 7p$
$8 = p$

(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

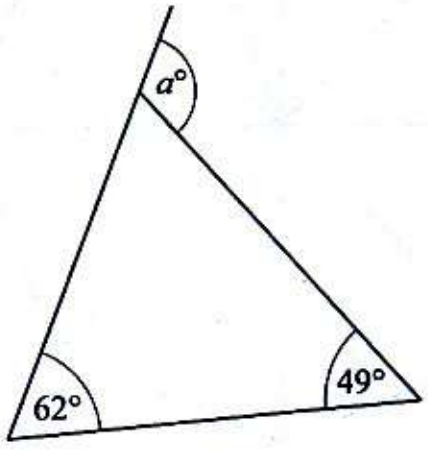
- The only numbers on the spinner are 1, 4 and 5.
- The probability of the spinner landing on a section numbered with a 1 is $\frac{1}{4}$
- The spinner is equally likely to land on an odd number as it is to land on an even number.

Complete the numbering on the spinner. [2]

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

14 [1]

6 (a) Work out the value of a.



NOT TO SCALE

→ 180 - (62 + 49) = 69

→ 180 - 69 = a

a = 111

$a =$ 111 ° [1]

(b) Give a geometric reason for your answer.

.....

..... [1]

7 Work out the temperature when

(a) the temperature is 6 °C and it falls by 13 °C,

6 − 13

−7 °C [1]

(b) the temperature is −2 °C and it falls by 8 °C.

−2 − 8

−10 °C [1]

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

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

1 − 0.3

0.7 [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%

$\frac{1}{2} \times 50 = 25$

$\frac{72}{100} \times 50 = 36$

Who scored the highest?

Show your working.

David scored the highest [2]

10 Match each calculation with its answer.

700 =	0.7×1000	7
		70
7 =	70×0.1	700
		7000
70000 =	$700 \div 0.01$	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	15
9	21
15	33

→ $2(6)+3 = 15$

→ $2(9)+3 = 21$

[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) $456 \div 12$ = 38 [1]

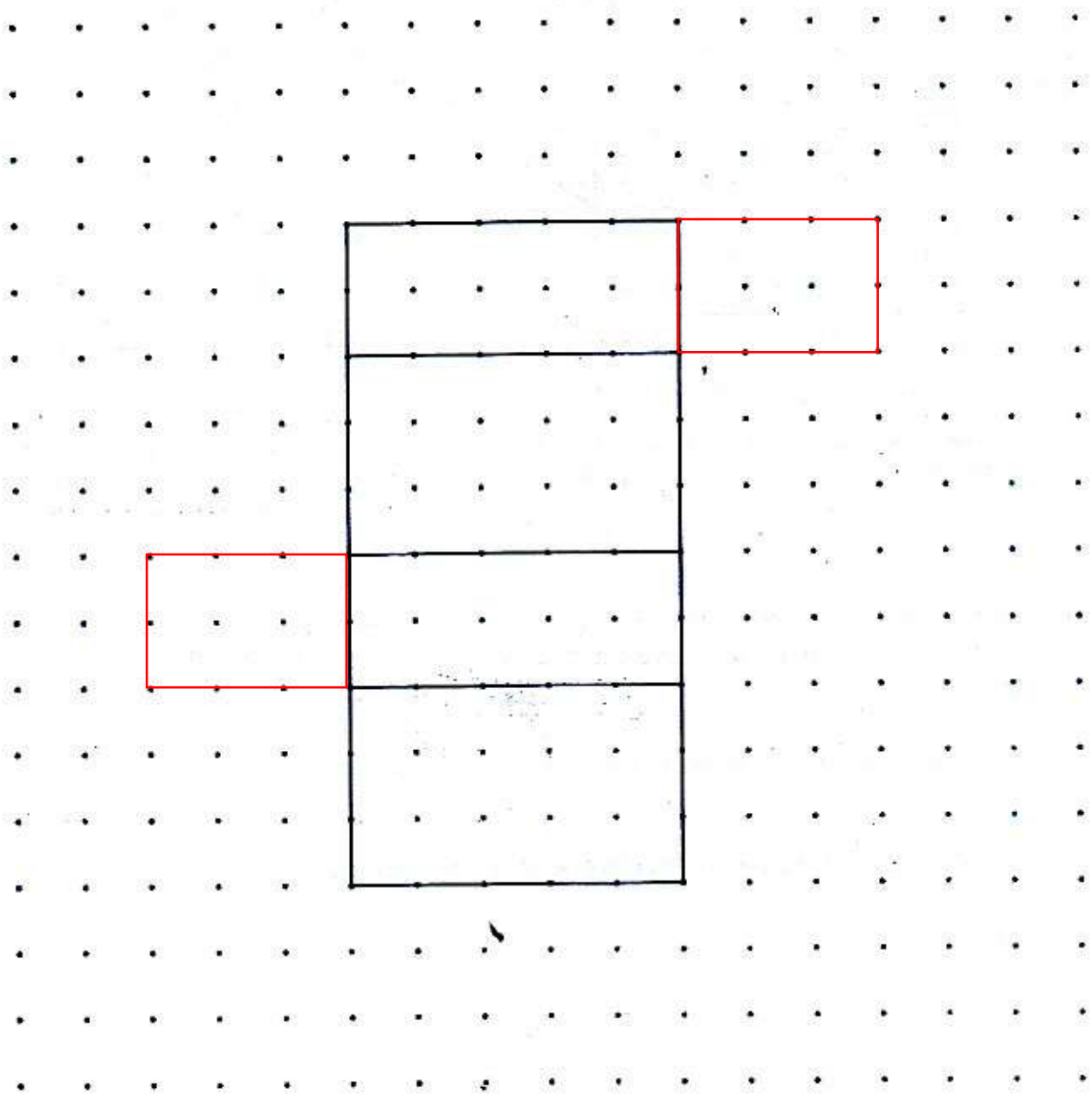
(b) 38×1.2 = 45.6 [1]

(c) 3.8×1.2 = 4.56 [1]

13 A cuboid has dimensions 2 cm × 3 cm × 5 cm.

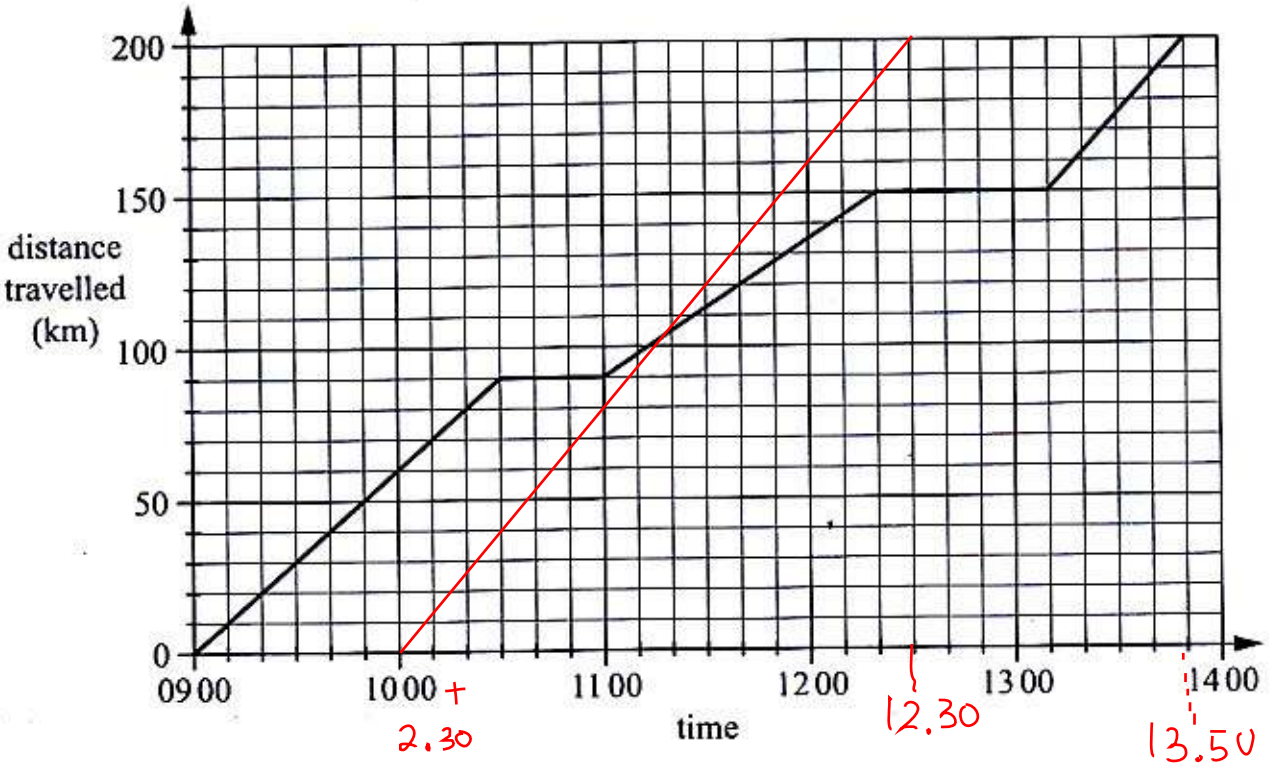
Part of the net of this cuboid is shown on the centimetre square grid.

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.

$t = \frac{200\ km}{80\ km/hr} = 2.5\ hr$

(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?

13.50
12.30 −
1.20

1 hr 20 mins

..... [1]

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

$\sqrt{25} = 5$ $3^2 = 9$ $\sqrt[3]{64} = 4$ $0.2^2 = 0.04$

0.2^2 ..... $\sqrt[3]{64}$ ..... $\sqrt{25}$ ..... 3^2

smallest largest [1]

16 Work out

(a) 1.56×3.6

$$\begin{array}{r} 1.56 \\ \times\ 3.6 \\ \hline 936 \\ 468\ + \\ \hline 5.616 \end{array}$$

..... 5.616 [2]

(b) $5.44 \div 1.6$

$$\begin{array}{r} 3.4 \\ 1.6\overline{)5.44} \\ 4.8\ - \\ \hline 6.4 \\ 6.4\ - \\ \hline 0 \end{array}$$

..... 3.4 [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.

$A + J = 59$

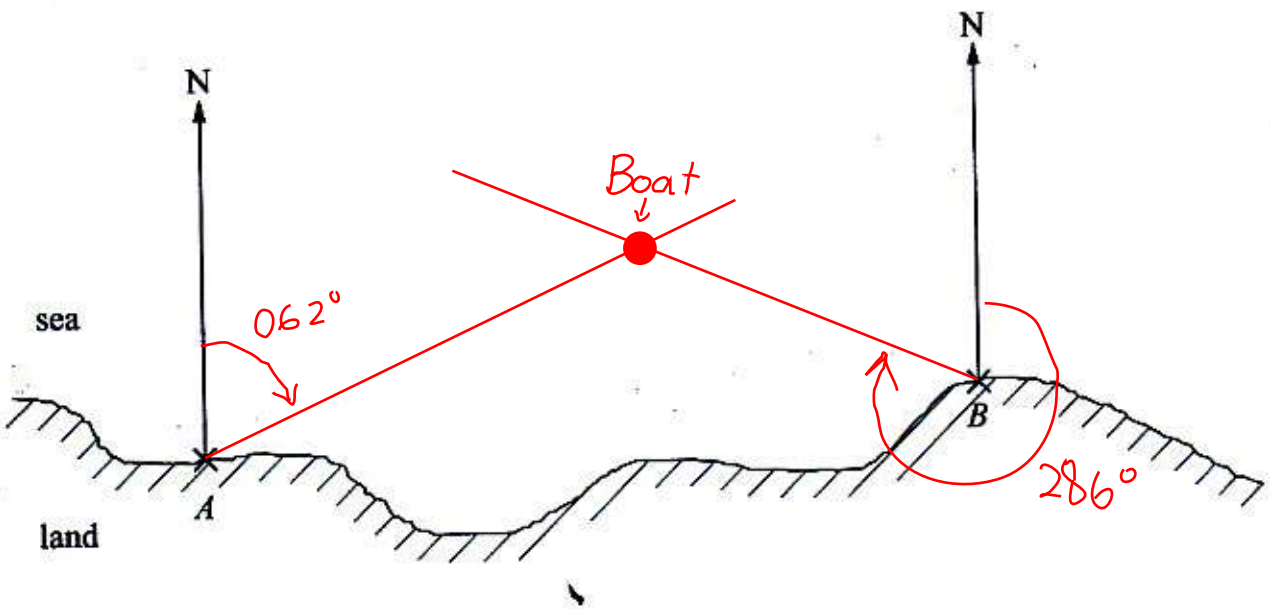
$n + n - 3 = 59$

$2n - 3 = 59$

$2n = 62$

$n =$ 31 [2]

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



A boat is on a bearing of 062° from beach A and on a bearing of 286° 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.

	True	False
$9^0 = 0$ $g^0 = 1$	☐	☑
$9^3 \times 9^2 = 9^5$ $g^{3+2} = g^5$	☑	☐
$9^8 \div 9^4 = 9^2$ $g^{8-4} = g^4$	☐	☑

[1]

20 Calculate

(a) $2\frac{2}{3} - 1\frac{3}{4}$ $= \frac{8}{3} - \frac{7}{4}$

$= \frac{32}{12} - \frac{21}{12}$

$= \frac{11}{12}$

$\frac{11}{12}$

..... [2]

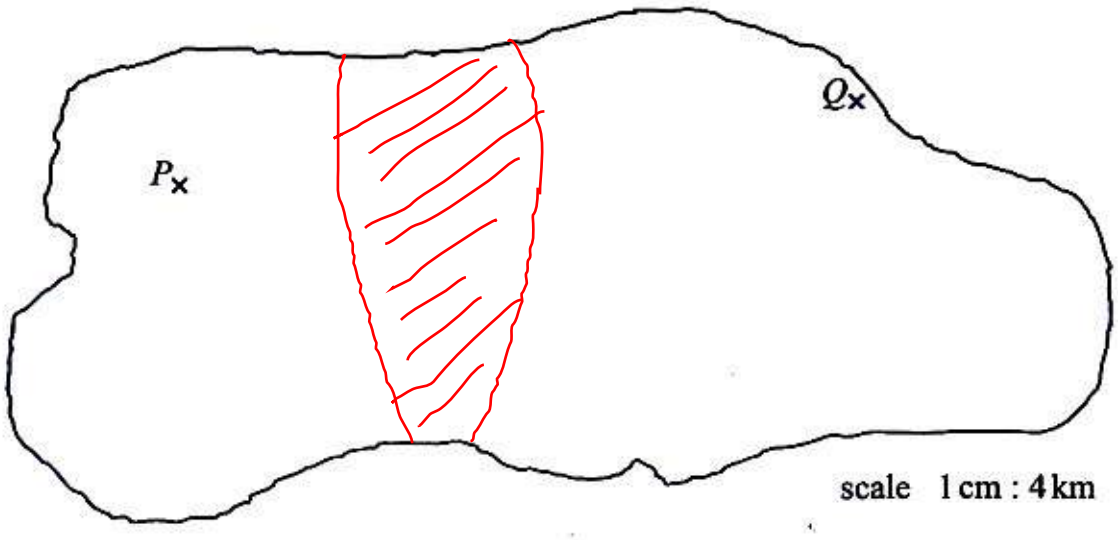
(b) $1\frac{1}{3} \times 2\frac{2}{5}$ $= \frac{4}{\cancel{3}_1} \times \frac{\cancel{12}^4}{5}$

$= \frac{16}{5}$

$3\frac{1}{5}$

..... [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) $5 + 2 \times 7$

$5 + 14$

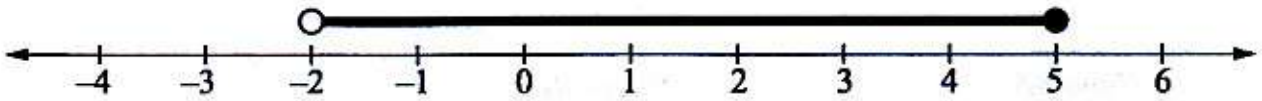
19 ..... [1]

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

4×10

40 ..... [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**.

Class 8A						Class 8B				
		8	3	1	14 | 6				
	7	7	7	5	15 | 0	2	7		
9	9	8	6	4	16 | 1	1	3	5	8
		3	1	0	17 | 0	4	6	6	6
					18 | 2				

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

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

min = 141
max = 173
173 − 141

32 ..... cm [1]

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

164 ..... 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?

Profit = $\frac{40}{100} \times 5 = \$2$

Sell price = $\$5 + \$2 = \$7$ / pack

= $0.35 / can

$ ..... [3]