Write your first name and family name here:	
Write BOY or GIRL here:	

Leave this space blank.	
A	B

CHRIST'S HOSPITAL

Entrance Examinations: January 2014

For Year 7 admission in September 2014

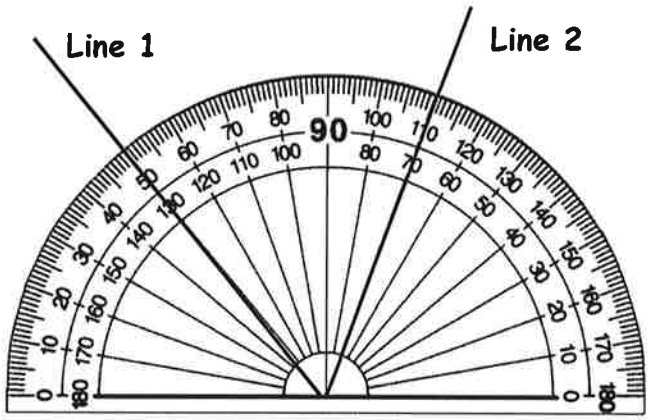
Mathematics

Section A

You are advised to spend about 40 minutes on Section A

1. Write your answers clearly.
2. You may do the questions in your head if you think they are easy, or you may do your working in the space provided.
3. If you don't show any working and your answer is wrong then you will get no marks.
4. If your answer is wrong but you have shown some working then you may still earn some "method" marks.
5. Calculators must NOT be used.
6. The approximate number of marks for each question is shown in brackets, e.g. [2]
7. At the foot of each page you will see a large circle: this is to be left blank. (It will be used by the person marking your paper.)

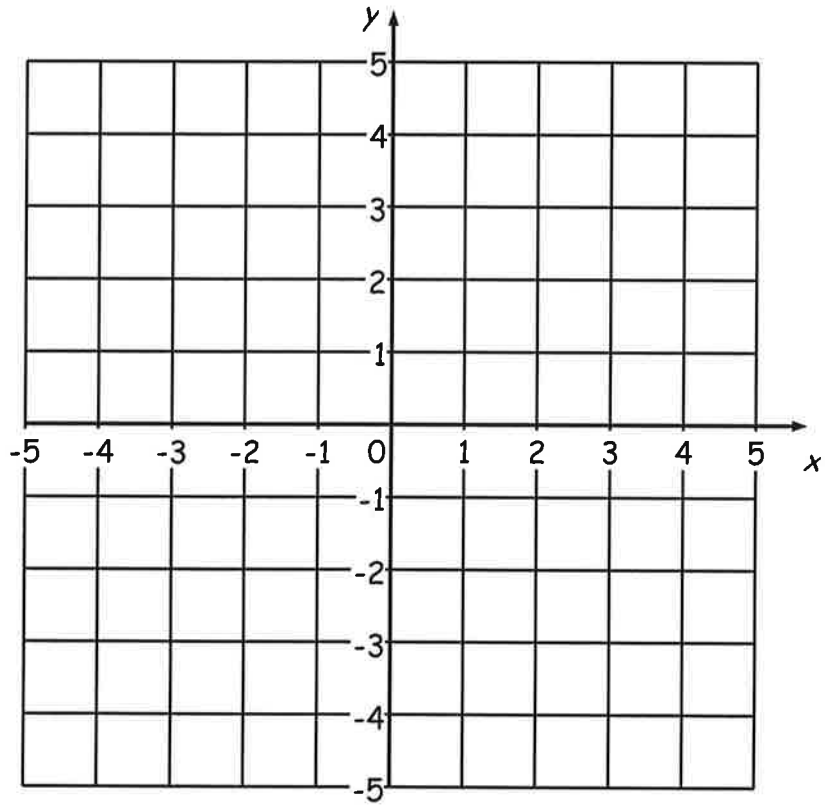
A1	Work out the answer to each of these arithmetic problems: a) 400 ÷ 50 Answer:	**[1]**
	b) Double 7.55 Answer:	**[1]**
	c) 3 × 4 + 5 × 6 Answer:	**[2]**
A2	Five children go to a café. They each pay £5.99 for a meal. Work out the **total** amount they pay altogether. Answer: £	**[2]**
A3	Write down the next two items in each of these patterns: a) 7, 11, 15, 19, ☐, ☐ b) 96, 48, 24, 12, ☐ ☐ c) 2, 4, 7, 11, ☐, ☐	**[1]** **[1]** **[1]**

A4	The diagram shows a protractor being used to measure the angle **between** two lines.  The lines are labelled **Line 1** and **Line 2**. Use the protractor to measure the angle **between Line 1** and **Line 2**. Answer: degrees	**[2]**
A5	Convert 35 centimetres into millimetres. Answer: mm	**[1]**
A6	Convert 2750 grams into kilograms. Answer: kilograms	**[1]**

A7 The diagram below shows a set of coordinate grids. Notice that the x-coordinates are negative at the left and positive at the right. The y-coordinates are negative at the bottom and positive at the top.

i) Plot the points (4, 1), (−2, 3), (−4, 1) and (−2, −1). **[4]**

ii) Join the four points up in order, and then join the last point up to the first one. **[1]**



What name best describes the shape you have drawn?

Answer: **[1]**

A8 Work out these divisions:

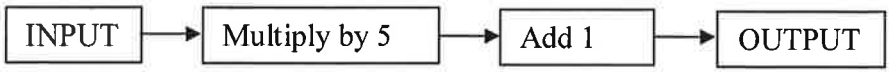
i) 568 divided by 8

ii) 1846 divided by 13

Answer: **[2]**

Answer: **[3]**

A9 Here are some instructions for a number-cruncher machine:



a) Find the **output** if the input number is 3.

Answer: [1]

b) Find the **input** if the output number is 36.

Answer: [1]

c) Molly says: "The **output** number is **ALWAYS** an **EVEN** number."
Give an example to show that Molly is **WRONG**.

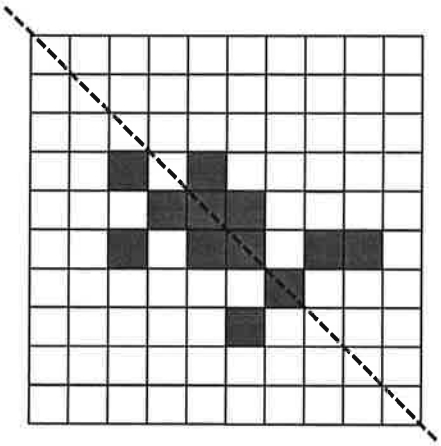
Answer: [1]

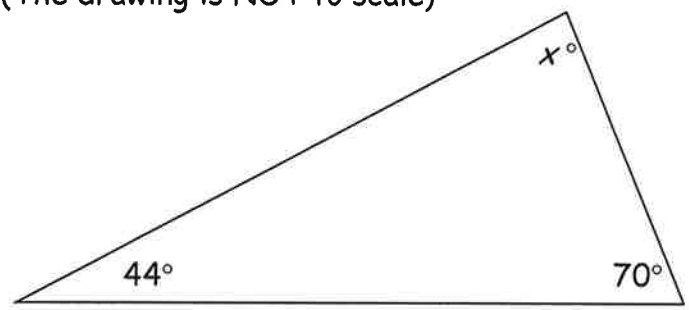
A10 A cup contains 250 millimetres. Roughly how many litres is this?
Put a ring round the best answer.

One-quarter 2.5 25

[1]

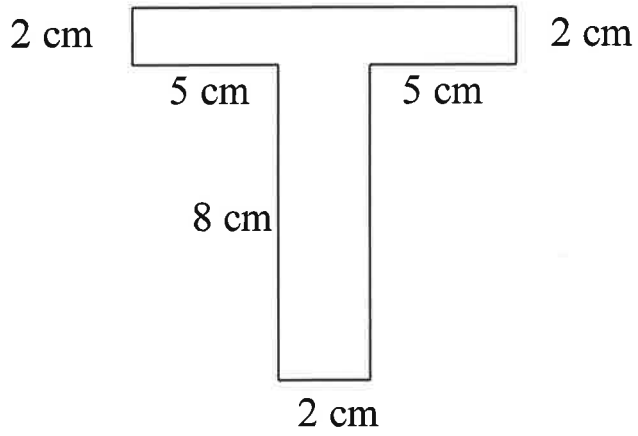
A11	Write down the **three** prime numbers in this list: 27 29 31 33 35 37 39 Answer: _____ _____ _____	**[3]**
A12	The fraction **one eighth** is roughly the same as one of these percentages. Put a ring around the best one. 10% 12% 14% 16% 18%	**[1]**
A13	Find two-fifths of three hundred and twenty. Answer:	**[3]**

A14	Multiply 132 by 14. Answer:	**[3]**
A15	Shade three more squares so that the dotted line is a line of symmetry (mirror line) for this shape: 	**[3]**
A16	Here are the ages of some dogs waiting at a vet clinic: 1, 3, 4, 4, 5, 6, 6, 6, 10 a) How many dogs were there? Answer: b) Find the mode of the ages of the dogs. Answer: c) Find the total of the ages of all the dogs. Answer: d) Find the mean of the ages of the dogs. Explain how you did it. Answer:	**[1]** **[1]** **[1]** **[2]**

A17	Six times a number, minus 4, is the same as four times the number, plus 10. What is the number? Answer:	[2]
A18	Work out 2.16 times 8 Answer:	[2]
A19	(The drawing is NOT to scale)  a) Find the missing angle $x°$. Explain how you did it. Answer: b) What type of triangle is this? Answer:	[3] [1]

A20	a) Find 10% of 450. Answer:	[1]
	b) Find 30% of 130. Answer:	[2]
	c) Find 23% of 400. Answer:	[3]

A21 The diagram shows a T shape.
The diagram is not accurately drawn to scale.



a) Write the two remaining lengths on the diagram. **[2]**

b) Find the **perimeter** of the T shape. State the units.

Answer: **[2]**

c) Find the **area** of the T shape, showing how you did it.
State the units.

Answer: **[3]**

A22 If x is a number, then 3x means "three times x"

a) If x = 6, work out the value of 2x

Answer: [1]

b) If y = 7, work out the value of y + 3

Answer: [1]

c) If p = 5 and q = 3 work out the value of 3p + 4q

Answer: [1]

A23 In England the money we use is pounds (£).
In Europe the money they use is euros (€).

£100 (pounds) is worth the same as €120 (euros).

a) How many euros would be worth the same as £500 (pounds)?

Answer: €

[1]

b) How many pounds would be worth the same as €300 (euros)?

Answer: £

[2]

c) Bruno has £600 (pounds). Marie has €700 (euros). Decide who has the most money. Explain how you decided.

Answer:

[2]

END OF SECTION A. NOW GO TO SECTION B.

Write your first name and family name here: Write BOY or GIRL here:	Leave this space blank.

CHRIST'S HOSPITAL

Entrance Examinations: January 2014

For Year 7 admission in September 2014

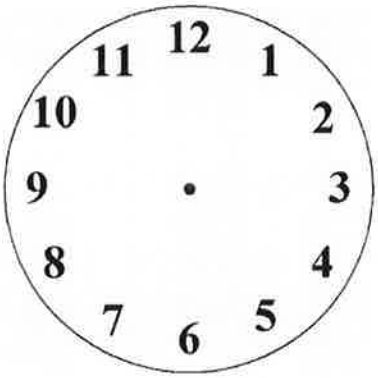
Mathematics

Section B

You are advised to spend about 20 minutes on Section B

1. Write your answers clearly.
2. You **must** show some working or explanation for each answer in order to score full marks.
3. Calculators must NOT be used.
4. The approximate number of marks for each question is shown in brackets, e.g. [2]
5. This section is deliberately much harder than Section A. Do not worry if you can only do a few of the questions.

B1	**Cake stalls** Five people are selling cakes at market stalls. Anton sells 2 cakes for £1. Bella sells 5 cakes for £2. Christy sells 9 cakes for £4. Denis sells 11 cakes for £5. Ed sells 21 cakes for £10. Work out which person gives best value for money. Explain how you decided.	**[2]**

B2	**Just a minute** Work out how many degrees the minute hand moves through between 07.30 and 09.15. You can use the clock face to help you.  	**[2]**

B3	**Multiplication and Division** Here is the correct answer to a multiplication problem: $6 \times 5678 \times 10 = 340\,680$ Use this information to help you work out the answer to this division problem: $340\,680 \div 5678$	**[2]**

B4	**Boys and girls** At Casterbridge Academy the ratio of boys to girls is exactly 5:6. There are 200 **boys** at Casterbridge Academy. Work out the number of **girls** at Casterbridge Academy.	**[2]**

B5	**Mobile phone calls** My monthly mobile phone bill is in two parts: a fixed £10 service charge plus 5 pence for each call I make. In October my bill was £21.00. In November I made twice as many calls as in October. Work out the cost of my November bill.	[2]

B6	**Sweets** Luke, Fred and Evie have a bag of sweets. Luke eats half of the sweets. Fred eats two-thirds of what is left. Evie eats the remaining 24 sweets. Work out how many sweets were in the bag to begin with.	**[3]**

B7	**Cats and dogs** A farmer decides to buy some cats and some dogs. Two cats and three dogs would cost £180. One cat and four dogs would cost £190. Work out the total cost of three cats and seven dogs.	**[3]**

B8	**Bacteria** Some bacteria are growing in a dish in a laboratory. Each day the number of bacteria doubles. On February 1st there are 200 bacteria. On what day does the number of bacteria first become more than one million?	**[3]**

B9 **Number pattern**

Here is the first part of a number pattern:

13, 16, 19, 22, 25, ...

Which of these numbers will appear somewhere in the pattern?

36, 46, 56, 100, 1000

[3]

B10	**Countdown** Here are **six numbers**: 50 25 9 7 2 1 Using +, −, ×, ÷ and brackets try to make a target number of 790. You may use the symbols and brackets as many times as you need, but **each number must be used exactly once**. If you can't make exactly 790 you may still score marks for a close attempt.	**[3]**

END OF SECTION B. NOW CHECK YOUR ANSWERS TO BOTH SECTIONS.