DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2013

B

FORM 3 **MATHEMATICS** **TIME: 30 minutes**
(Non Calculator Paper)

Name: _____ **Class:** _____

1	2	3	4	5	6	7	8	9	10	Total

INSTRUCTIONS TO CANDIDATES

- **Answer ALL questions.**
- **This paper carries a total of 25 marks.**
- **Calculators and protractors are NOT ALLOWED.**

1 Work out the following:

(a) $(-5)+(-9)$

Ans: _____

(b) $(-6)\times(+3)\times(-2)$

Ans: _____

(2 marks)

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2 Mariah runs at a speed of 8 km per hour. What **distance** does she travel in 3.5 hours?

Ans: _____km

(1 mark)

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3 **Estimate** $\dfrac{23.1\times 68.3}{4.85}$.

Ans: _____

(2 marks)

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4 (a) Change $1\frac{4}{9}$ to an improper fraction.

Ans: _____

(b) Work out**:** $\frac{3}{5}-\frac{3}{8}$

Ans: _____

(c) Work out**:** $\frac{3}{7}\times\frac{11}{12}$

Ans: _____

(5 marks)

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5 Nancy inherits €2500. She divides the money between her two children Laura and Mark in the ratio 1 : 4. How much money does **each child** receive?

Ans: Laura gets €_____, Mark gets €_____

(2 marks)

---

6 Work out the **value** of $3x + 4y$ when $x = 6$ and $y = -3$.

Ans: _____

(2 marks)

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7 Calculate 30% of 200 metres.

Ans: _____metres

(2 marks)

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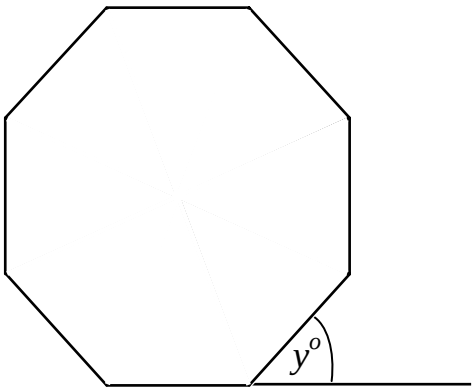
8 The diagram shows a regular octagon.



Calculate the size of the **exterior angle** of the regular octagon, marked $y°$ on the diagram.

Ans: $y° =$ _____ °

(2 marks)

9 Here are six numbers written in standard form.

2.6×10^{5} 1.75×10^{6} 5.84×10^{0} 8.2×10^{-3} 3.5×10^{-1} 4.9×10^{-2}

(a) Write down the **largest** number.

Ans: _____

(b) Write 4.9×10^{-2} as an **ordinary number**.

Ans: _____

(2 marks)

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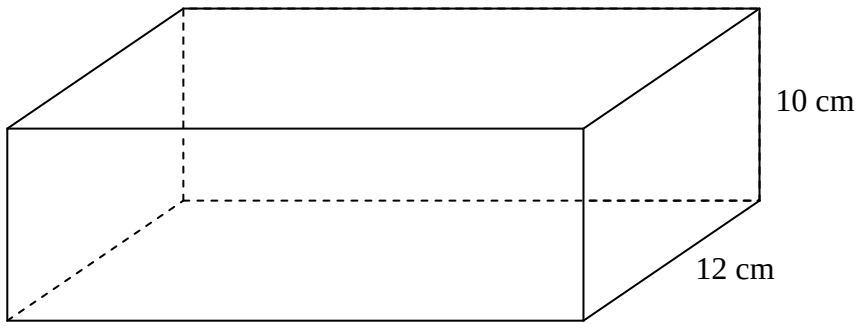
10 A storage box is in the shape of a **cuboid**.



Not drawn to scale

(a) Calculate the **volume** of this storage box.

Ans: _____cm^3

(b) Calculate the **total surface area** of the box.

Ans: _____cm^2

(5 marks)

END OF PAPER

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B

FORM 3 **MATHEMATICS (Main Paper)** **TIME: 1h 30min**

Name: _____ **Class:** _____

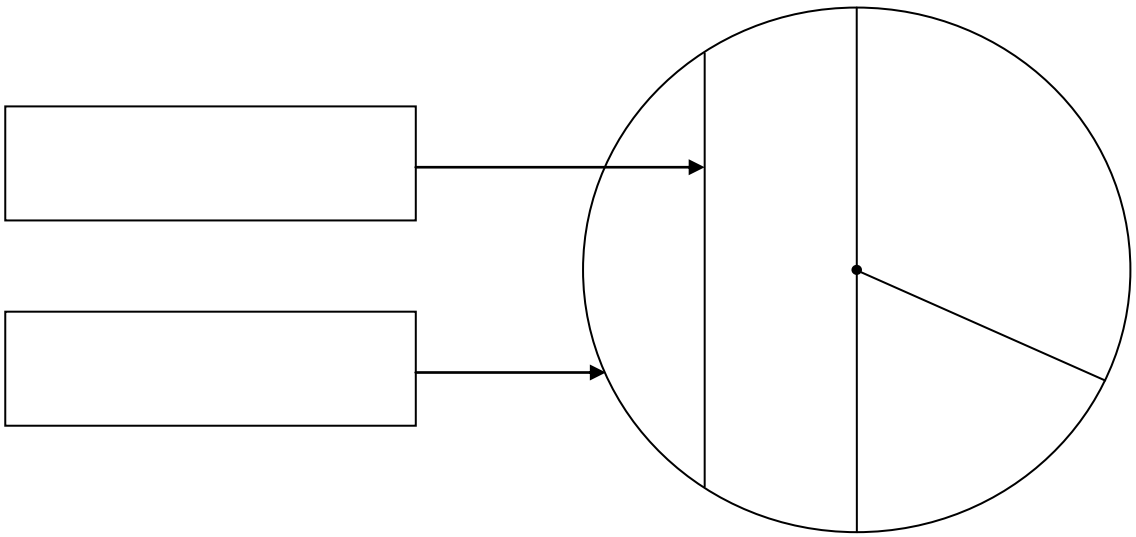
1	2	3	4	5	6	7	8	9	10	11	12	13	Total Main	Non Calculator	**GLOBAL MARK**

CALCULATORS ARE ALLOWED
BUT ALL NECESSARY WORKING MUST BE SHOWN.
ANSWER ALL QUESTIONS.

1 Here is a list of words that represent parts of a circle:

chord *centre* *radius* *diameter* *circumference*

Fill each box below by choosing the **correct word** from the list.



(2 marks)

2 (a) **Increase** €360 by 55%.

Ans: €_____

(b) During a sale, the price of a shirt is decreased from €42 to €27.30. What is the **percentage decrease**?

Ans: _____%

(5 marks)

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3 (a) Insert the **correct symbol** in the box below: $=$, $>$, $<$, $\geq$ or $\leq$

-6 $\boxed{}$ -8

(b) **Simplify** this ratio as much as possible: 16 **:** 240 **:** 600

Ans: _____

(c) **Find** x in this ratio: x **:** 28 = 6 **:** 7

Ans: _____

(5 marks)

---

4 (a) Complete these **conversions**:

(i) 6 cm = _____ mm

(ii) 2400 g = _____ kg

(iii) 0.7 litres = _____ ml

(b) Jake's birthday party began at 20:45 on Saturday and finished at 01:00 on Sunday. How many **minutes** did the party last?

Ans: _____minutes

(5 marks)

Name_____ Class_____ **B**

5 A semi-circular protractor has a radius of 4.5 cm. Calculate its **perimeter**, giving your answer correct to **1 decimal place**.

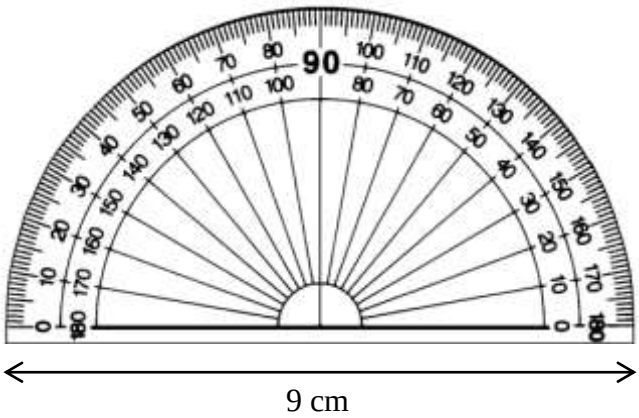


Diagram not drawn to scale

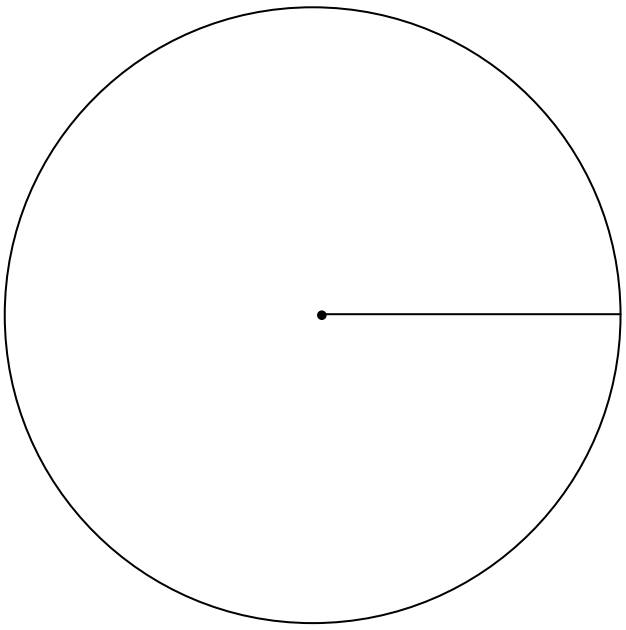
Ans: _____cm

(3 marks)

6 In a class of 30, the eye colours of the students were recorded as follows.

Eye colour	Amber	Blue	Brown	Hazel
Frequency	8	2	14	6

Draw a **pie chart** to represent this information. **Label** it clearly.



(5 marks)

7 (a) **Expand:** $8(3-6d)$.

Ans: _____

(b) **Factorise** completely**:** $18+24e$.

Ans: _____

(c) **Solve:** $11-3a=2$

Ans: _____

(d) Make x the **subject of the formula** $y=5x-3$.

Ans: _____

(7 marks)

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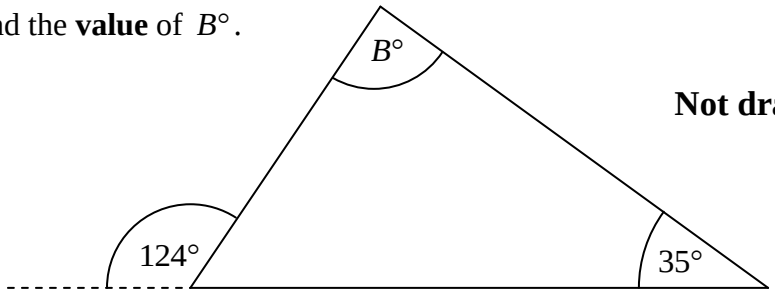
8 (a) Find the **value** of $B°$.



Not drawn to scale

Ans: $B° =$ _____ °

(b) Andre thinks of a number. He multiplies it by 4 and adds 6. His answer is 30.

(i) Write down an **equation** for Andre's number.

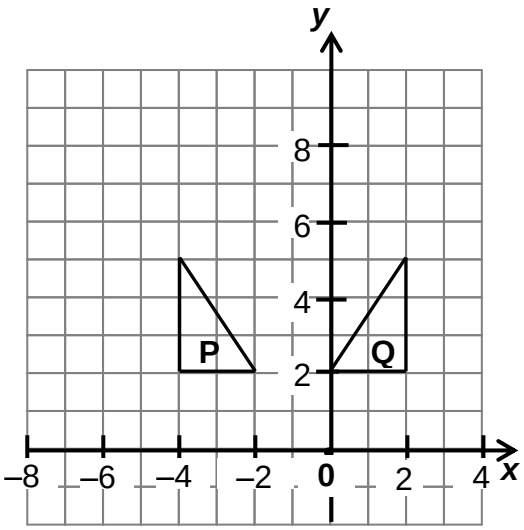
Ans: _____

(ii) Find the number.

Ans: _____

(7 marks)

9



(a) **Describe fully** the single transformation that maps Triangle P to Triangle Q.

Ans: _____ in the line _____

(b) **Translate** Triangle P by 6 squares to the right and 4 squares up. Label the image R.

(c) **Enlarge** Triangle P by a scale factor of 2 using (0, 0) as the centre of enlargement. Label the image S.

(6 marks)

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10 (a) **Simplify:** (i) $x + x$

Ans: _____

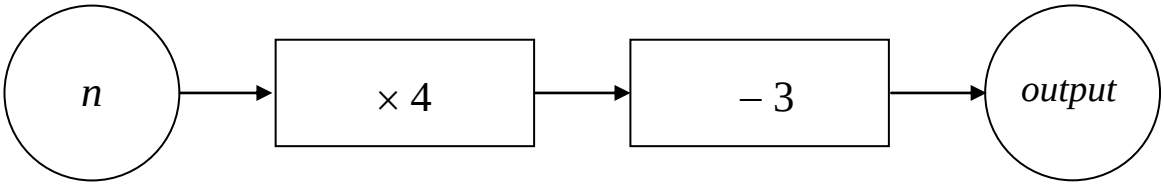
(ii) $x \times x$

Ans: _____

(iii) $7y + 5 - 2y + 3 - y$

Ans: _____

(b) Look at the **number machine** below.



(i) **Complete** the table.

n	1	2	3	4	5
output		**5**			

(ii) Write down the **rule** in terms of *n*.

Ans: _____

(7 marks)

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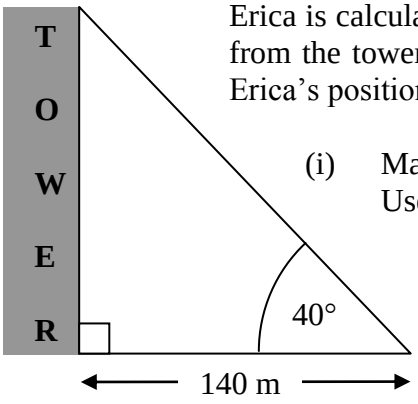
11 (a) (i) Draw a **circle** of radius 4 cm. Use the point O below as the centre of this circle.

(ii) Hence, construct an **inscribed regular hexagon** of side 4 cm using ruler and compasses only.

•O

(b) Erica is calculating the height of a tower. She stands 140 metres away from the tower. The angle of elevation of the top of the tower from Erica's position is $40°$.



Not drawn to scale

(i) Make a **scale drawing** of the diagram shown.
Use a scale of 1 cm to represent 20 m.

(ii) Use your drawing to calculate the **actual height** of the tower to the nearest metre.

Ans: _____m

(8 marks)

12 (a) Kyle throws an ordinary dice. Find the **probability** that Kyle gets a

(i) 6 Ans: _____

(ii) prime number Ans: _____

(iii) 5 or more Ans: _____

(b) Michael says that the probability that it will rain is $\frac{6}{5}$. Tick one of the boxes below to show whether you **agree or disagree** with Michael. Give a **reason** for your answer.

☐ Agree ☐ Disagree

Reason: _____

(c) The heights, to the nearest centimetre, of 10 girls are:

159, 155, 153, 154, 157, 162, 152, 160, 161 and 154. Find**:**

(i) their **median** height

Ans: _____cm

(ii) the **range** of their heights

Ans: _____cm

(7 marks)

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13 (a) **Complete** the table for $y = 3x + 2$.

x	**–2**	**–1**	**0**	**1**	**2**	**3**	**4**
$3x$	– 6			3		9	
+2	+2		+2		+2		
y	**– 4**		**2**	**5**		**11**	**14**

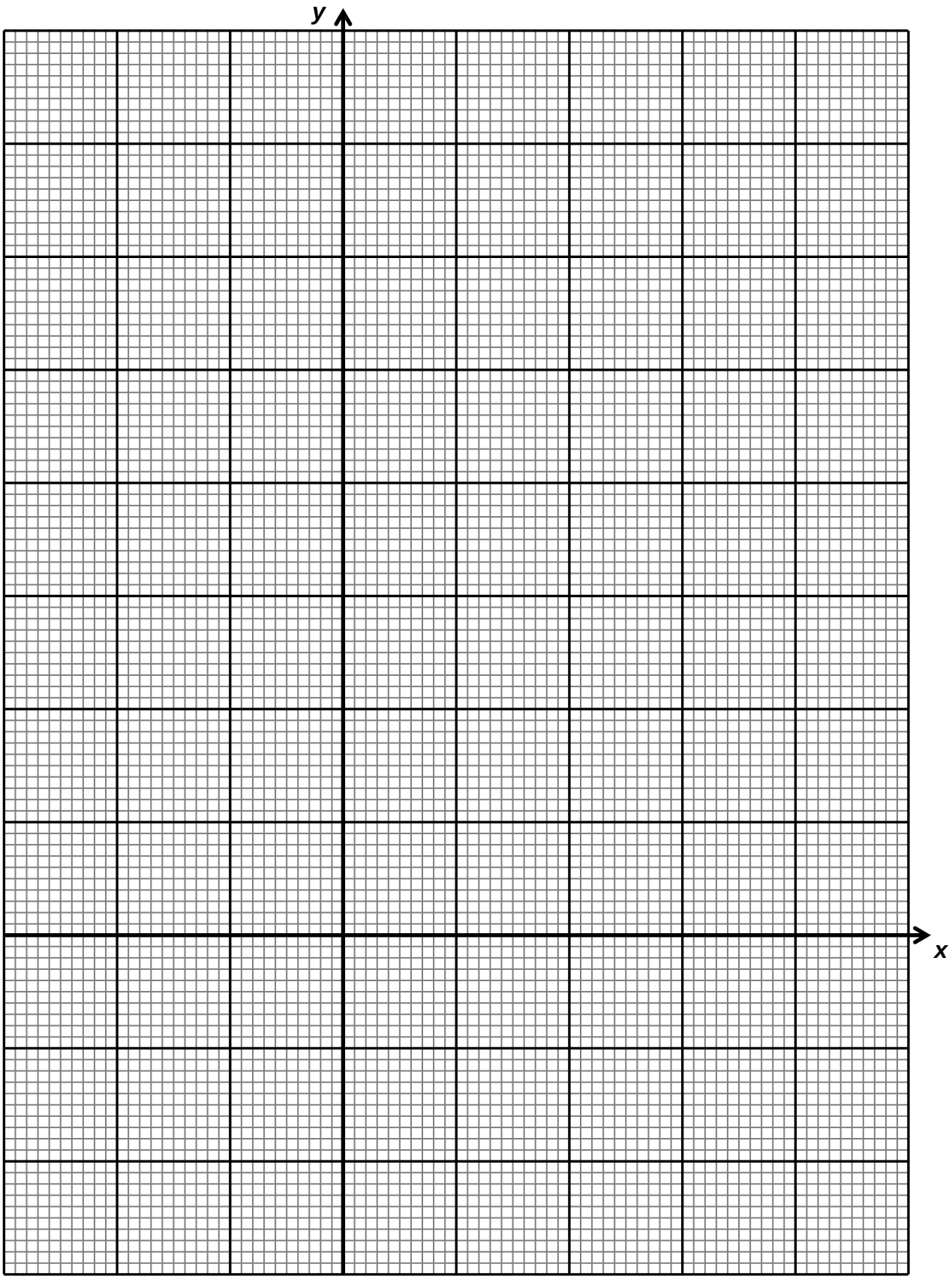
(b) **Plot** the points on the graph paper found on page 8. Use 2 cm for each unit on the x-axis and 1 cm for each unit on the y-axis.

(c) **Draw the graph** of $y = 3x + 2$ on the same graph paper.

(d) **Mark** and **label** the points A (0, 2) and B (3, 11) on the graph.

(e) Use these two points to find the **gradient** of the line AB.

Ans: _____



(8 marks)

END OF PAPER