FORM 2	**MATHEMATICS** Scheme A	TIME: 30 mins

Non Calculator Paper

| Question	1	2	3	4	5	6	7	8	Total
Max. Mark	3	2	4	4	2	2	4	4	25
Mark									

DO NOT WRITE ABOVE THIS LINE

NAME AND SURNAME: _____CLASS: _____

INSTRUCTIONS TO CANDIDATES:

Read all the questions carefully before you start answering.

- Answer all questions.

- This paper carries 25 marks.

- **Calculators, protractors** and other mathematical instruments are **NOT ALLOWED.**

- On your desk you should have nothing except for **pen, pencil** and the **examination paper**.

- You are not required to show your working. However, space for working is provided if you need it.
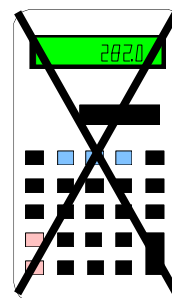
1. a) Write all the **prime** numbers between 20 and 30.   _____   _____

   b) Write two **factors** of 24.   _____   _____

   c) Write two **multiples** of 6.   _____   _____

_____
(3 marks)

2. Write in **ascending** order.

$$\frac{1}{2}, \quad \frac{1}{24}, \quad \frac{1}{8}, \quad \frac{1}{4}, \quad \frac{1}{6}$$

_____

(2 marks)

3. A bag contains 2 **yellow** marbles, 3 **red** marbles and 5 **green** marbles.

   Alan picks a marble at random from the bag.

   What is the probability that the marble is:

   a) green: **P (green)**= _____

   b) yellow or green: **P (yellow or green)**= _____

   c) blue: **P (blue)**= _____

   d) not yellow: **P (not yellow)**= _____

(4 marks)

4. **Work out:**

$0.2 \times 6 =$ _____

$70 + 25 =$ _____

$27 \div 9 =$ _____

$34 - 20 =$ _____

(4 marks)

5. Express 50 c as a **percentage** of €2.50.

(2 marks)
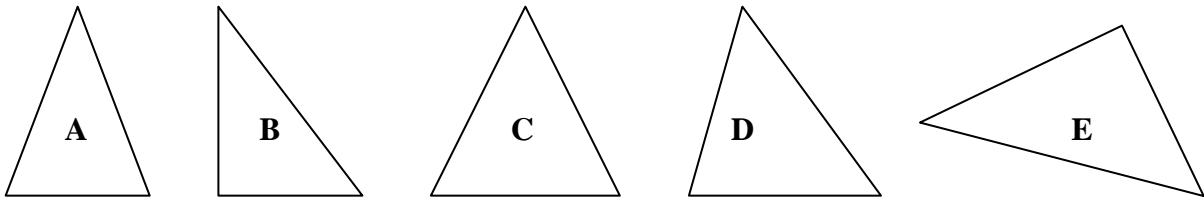
6. By rounding to the **nearest whole number**, write an **estimate** of:

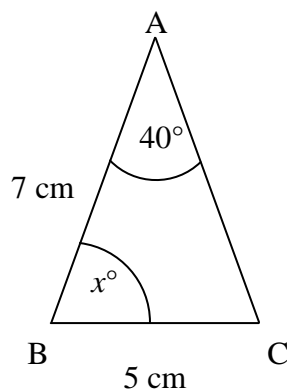$$\frac{24.2 \times 8.9}{3.11} \approx$$ _____

(2 marks)

A

7. Look at the **triangles** below.

   a) Which **two triangles** are **right-angled**? _____

   b) Which **two triangles** are **isosceles**?   _____

   c) How many **triangles** are **scalene**? _____

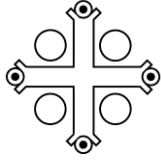   d) Which **triangle** has **rotational symmetry** of **order 3**? _____

   (4 marks)

8. Triangle **ABC** is an **isosceles** triangle, where **AB = AC**.
    Angle A is **40°**, side **AB** is **7 cm** long and side **BC** is **5cm** long.

   a)   Find the missing **angle $x°$**.

   b)   Find the **perimeter** of **triangle** ABC.

   (4 marks)

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Boys Secondary School, Kirkop

HALF-YEARLY EXAMINATINS – FEBRUARY 2012

FORM 2   **MATHEMATICS** Scheme A   **TIME: 1hr 30mins**

Main Paper

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Main	NC	Global Mark
Max. Mark	3	5	3	6	5	3	2	9	5	6	12	6	6	4	75	25	100
Mark																	

DO NOT WRITE ABOVE THIS LINE

NAME AND SURNAME: _____CLASS: _____

INSTRUCTIONS TO CANDIDATES:

Read all the questions carefully before you start answering.

- Answer all questions.
- This paper carries 75 marks.
- Calculators and mathematical instruments are allowed but all necessary working must be shown.

1. David took 1 hour 12 minutes to do his homework. Alice took 1.4 hours to finish hers. Who took **longer** and by how many minutes?

Ans: _____ by _____ minutes

(3 marks)

2. Work out:

(a) $\dfrac{4}{5} - \dfrac{1}{2}$

Ans: _____

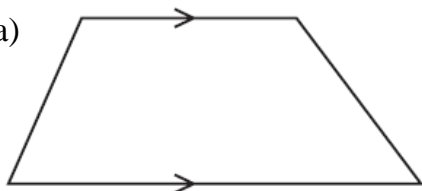(b) $3\dfrac{2}{3} + \dfrac{3}{7}$ Give your answer as a **mixed number**.
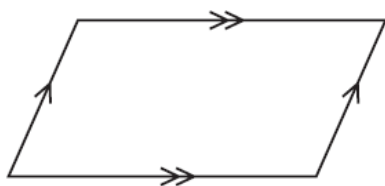
Ans: _____

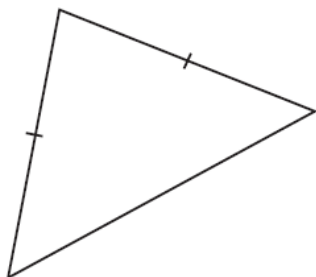(5 marks)

3. Fill in the names of the three shapes below.

(a)

Ans: This quadrilateral is _____

(b)

Ans: This quadrilateral is _____

(c)

Ans: This triangle is _____

(3 marks)

4. (a) Write 288 as a **product of its prime factors**.

Ans: 288 = _____

   (b) At the school disco, the blue lights flash every **4 seconds**, the green lights flash every **6 seconds**, the red lights flash every **5 seconds** and the yellow lights flash every **12 seconds**.

   After they flash together for the first time, how long is it before they **flash together** again?

Ans: _____

   (c) Find the **HCF** of the following numbers: 124 and 90.

Ans: _____

(6 marks)

5. In a game, two fair 8-sided dice numbered from 1 to 8 are thrown and the scores shown are added together.

Continue the table below to show the different totals possible.

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

Find the **probability** that the total is:

(a) an even number   Ans: P (even number) = _____

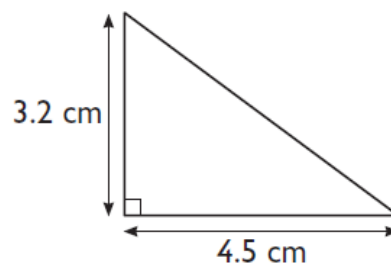(b) a prime number   Ans: P (prime number) = _____

(c) a square number   Ans: P (square number) = _____

(d) a multiple of 5   Ans: P (multiple of 5) = _____

(5 marks)

6. Calculate the **area** of this triangle.

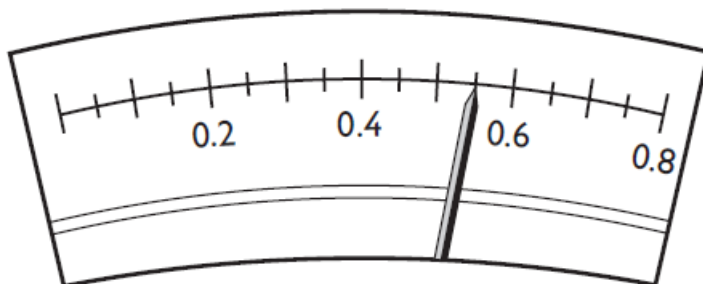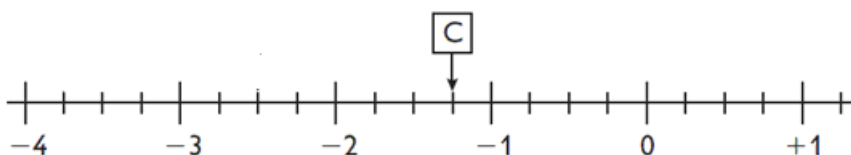

3.2 cm

4.5 cm

Ans: _____cm^2

(3 marks)

7. (a) This is called an ammeter and it measures electric current. What is the reading
        on this dial?

Ans: _____

(b) What is the value of C on this number line?

Ans: C = _____

(2 marks)

8. (a) **Fill in** the table below.

Fraction	Decimal	Percentage
$\frac{4}{5}$		
		62%
	0.75	
$\frac{7}{10}$		

(b) Now write these test results in **ascending order**, starting from the smallest.

$$62\% \qquad \frac{4}{5} \qquad 0.75 \qquad \frac{7}{10}$$

Ans: _____

(9 marks)

9. (a) Work out using your calculator.
        Round your answer correct to **1 decimal place**.

$$\frac{55 \ + \ 23}{2.4 \ + \ 1.8}$$

Ans: _____

    (b) An ordinary bar of milk chocolate weighs 49 grams.
        The amount of fat in the bar is 14.7 grams.
        Calculate the **percentage** of fat in this bar of milk chocolate.

Ans: _____%

(5 marks)

10. (a) **Simplify** the following expressions:

    (i) $9x + 6y - 5x - 4$ = _____
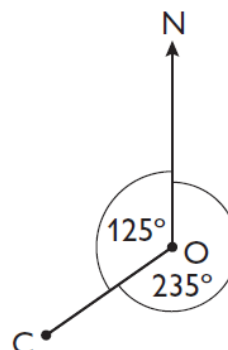
    (ii) $9(n + 5) + 2(n - 3)$ = _____

        = _____

    (b) **Factorise** fully: $12x + 9$ = _____
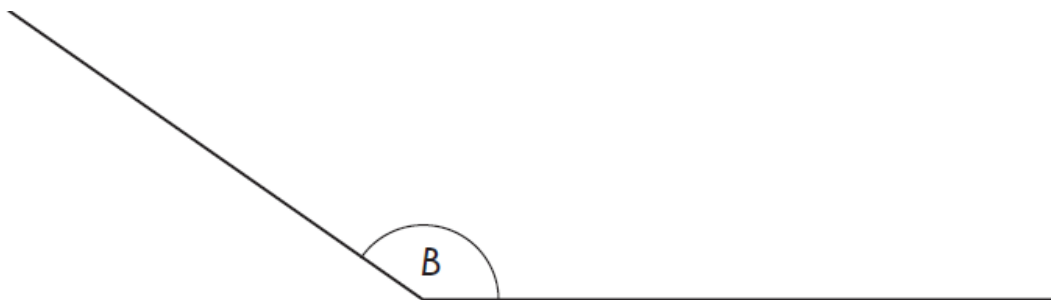
(6 marks)

11. (a) Write down the **three-figure bearing** of C from O.

N

125°
O
235°

C
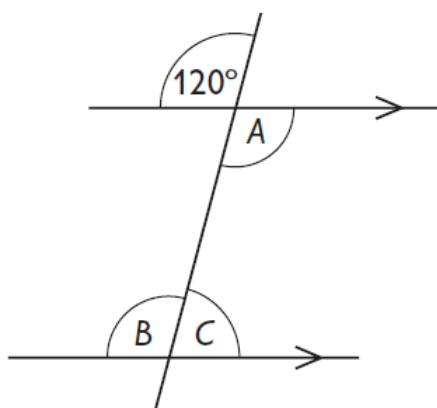
Ans: _____

(b) **Measure** this angle B and **say what type of angle it is**.

Ans: Angle B = _____ ; Angle B is _____

(c) Find the values of each lettered angle in these diagrams.
   Give a reason for your answers.

Angle A = _____

Reason: _____

Angle B = _____

Reason: _____

Angle C = _____

Reason: _____

Angle H = _____
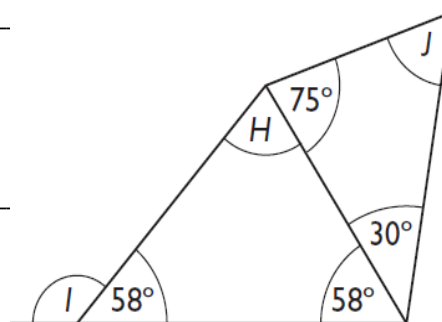
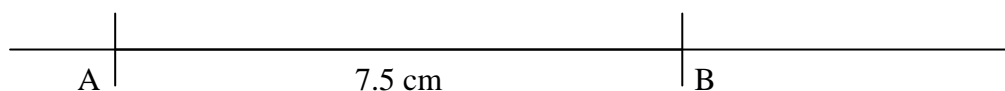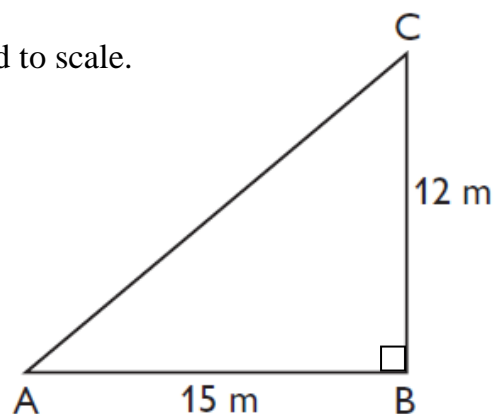Reason: _____

Angle I = _____

Reason: _____

Angle J = _____

Reason: _____

(12 marks)

12. Steve has a triangular pond in his garden.

(a) Using a **scale of 1cm to 2m**, draw this pond to scale.
Line AB is already drawn.

C

12 m

A   15 m   B

A | 7.5 cm | B

(b) From your drawing measure side AC.
Use the scale to find the actual length of AC.
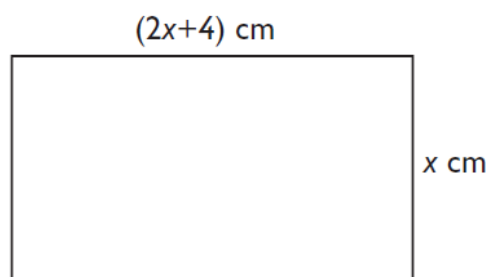
Ans: _____m

(c) Steve wants to put bricks around the outside of the pond.
Find the **perimeter** of the pond.

Ans: _____m

(6 marks)

13. (a) Write down and simplify the **expression for the perimeter** of the rectangle.

(2x+4) cm

x cm

Ans: _____ cm

(b) What is the perimeter of the rectangle **when x = 5cm**?

Ans: _____cm
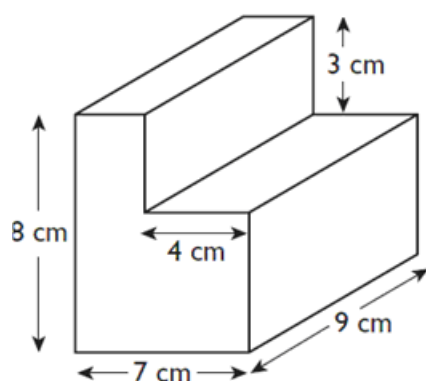
(c) If the **perimeter is 20cm**, what is the value of x?

Ans: $x =$ _____

(6 marks)

A

14. This is a simple model of a piano. Find the **volume** of this compound shape.

Ans: _____cm^3

(4 marks)

END OF PAPER