**SECONDARY SCHOOL ANNUAL EXAMINATIONS 2009**
Directorate for Quality and Standards in Education
Educational Assessment Unit

**FORM 2**  **MATHEMATICS SCHEME B**  **TIME: 30 minutes**
**Non-Calculator Paper**

Name: _____  Class: _____

| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Mark | | | | | | | | | | | |

# Instructions to Candidates

- **Answer all questions.**

- **This paper carries a total of 25 marks.**

- **Calculators and protractors are not allowed.**

**1.** Complete :

a) $2 \cdot 6 \times \boxed{\phantom{00}} = 26$

b) $0 \cdot 08 \times 10^2 = \underline{\hspace{2cm}}$

c) $7 \cdot 8 + 0 \cdot 2 = \underline{\hspace{2cm}}$

d) $4 \cdot 04 \div 2 = \underline{\hspace{2cm}}$

(4 marks)

**2.** Where must each of the digits $\boxed{2}$ $\boxed{3}$ and $\boxed{5}$

be placed to give the **largest** answer

for this multiplication?

$$\boxed{\phantom{0}}\boxed{\phantom{0}}$$
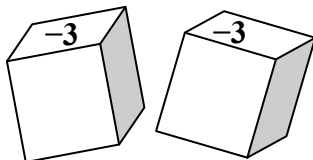$$\times \boxed{\phantom{0}}$$

(1 mark)

**3.** Work out:  a) $7 \times (8 - 2)$

**Ans:** _____

b) Find the value of:  $2(p - q)$ when $p = 10$ and $q = 6$.
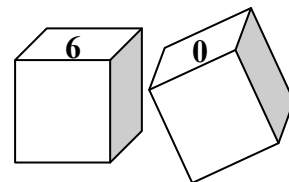
**Ans:** _____

(3 marks)

**4.**
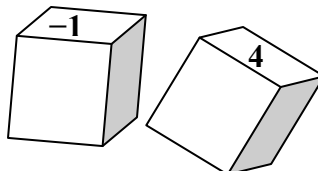
| **Helen** | **Gary** | **Diane** |



Helen, Gary and Diane are playing a dice game.

In this dice game the numbers on the **top** faces are **multiplied** together to find the score.

a)  What is their score?

(i)      Helen's score   \_\_\_\_\_ × \_\_\_\_\_ = _____

(ii)     Gary's score    \_\_\_\_\_ × \_\_\_\_\_ = _____

(iii)    Diane's score   \_\_\_\_\_ × \_\_\_\_\_ = _____

b)  Who gets the **highest** score?
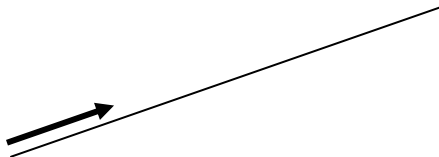
**Ans:** _____

(4 marks)

**5.** a) Which of the following fractions are equivalent to $\dfrac{3}{4}$ ?

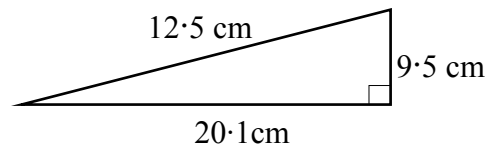$$\dfrac{303}{304} \, , \quad \dfrac{75}{100} \, , \quad \dfrac{42}{56}$$

**Ans:** _____  _____

b) The arrow is a **fraction** of the whole line. What is the fraction, in its **simplest** form?

**Ans:** $\dfrac{\square}{\square}$

(2 marks)

**6.** The **area** of this triangle is about

12·5 cm

9·5 cm

20·1cm

_____

(i) 200 cm$^2$    (ii) 100 cm$^2$    (iii) 180 cm    (iv) 200 cm$^3$

(2 marks)

**7.** Fill in the missing numbers in the sequences.
a) Write four more (**multiples** of 5) **greater than 20**.  ____  30  ____  ____  ____  50

b) Write four more (**odd numbers**) **greater than 23**.  ____  ____  29  ____  33  ____

c) Norma thinks of a number.
   She says:    (i)   It is a **multiple** of 5 **greater** than 20.
                (ii)  It is also an **odd** number **greater** than 23.
                (iii) The **sum** of its digits is 8.
   What is her number?

**Ans:** _____

**8.** A shop has two special offers this week.

**Offer 1**:

**50% discount**

**Offer 2**: **Buy 2 and pay for 1** (the **least** expensive is free).

Ms Delia needs to buy 2 pairs of shoes. These cost €34 and €36.

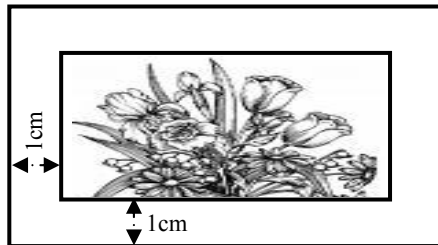(a) How much will Ms Delia **save** if she chooses **Offer 1**?

**Ans:** _____

(b) Which is the better offer, **Offer 1** or **Offer 2**?

**Ans:** Offer _____

(2 marks)

**9.**


1cm
1cm

A picture 8 cm long and 4 cm wide has a frame 1 cm wide.

What are the outer dimensions of the frame?

Length = _____cm    Width = _____ cm.

(2 marks)

**10.** Kurt is practising for a long jump competition.
His last five jumps were 2·36 m, 2·50 m, 2·46 m, 2·47 m and 2·51 m.

a) What is the **mean** length for these jumps?

**Ans:** _____

b) What is the **median** length for these jumps?

**Ans:** _____

(2 marks)

## SECONDARY SCHOOL ANNUAL EXAMINATIONS 2009
### Directorate for Quality and Standards in Education
### Educational Assessment Unit

**FORM 2**          **MATHEMATICS SCHEME B**          **TIME: 1h 30min**
**Main Paper**

| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Total Main | Non Calc | **Global Mark** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mark |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

### DO NOT WRITE ABOVE THIS LINE

**Name:** _____          **Class:** _____

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

**1.**     It helps to **use a calculator** in this question.
        a)   Which of the following is a square number?

            (i) 161          (ii) 225        (iii) 1689

                                        _____

        b)   Work out:
            (i)    $17^3 =$ _____                    (ii)   $\dfrac{5}{8} + \dfrac{9}{20} =$ _____

            (iii) $(4 \cdot 15 - 2 \cdot 25)^2 =$

                            _____

                                                        (4 marks)

**2.**     a)     Divide the line into 2 parts in the ratio of 1 : 3.

b) The ratio of **home** supporters to **away** supporters at a football match is **6.**
There are 18000 **home** supporters. What is the number of **away** supporters?

**Ans:** _____

c) What **fraction** of the square is shaded?

**Ans:** _____

(3 marks)

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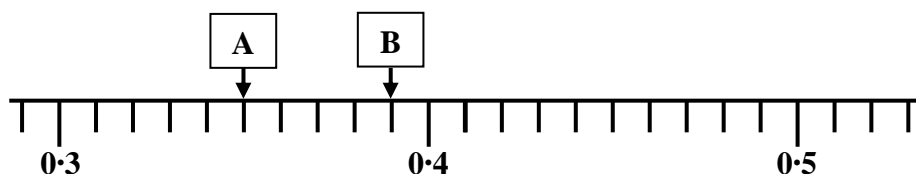**3**. a) **Three** of these numbers are **between 2·3** and **3·2**. Which are they?

**2·31**        **3·23**        **2·36**        **3·22**        **2·03**        **3·02**

**Ans:** _____  _____  _____

b)



A        B

0·3                    0·4                    0·5

(i) What decimal **numbers** are shown by the arrows on the number line?

**A** = _____        **B** = _____

(ii) ☐ **C** ☐ = **0·43**. Show this number on the above **number line**.

(iii) **Round** the number **B** correct to 1 decimal place.

**Ans: B** = _____ (correct to 1 d.p. )

(5 marks)

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**4.**

| Party Fruit Punch | | | |
|---|---|---|---|
| 700 *ml* | ginger ale | 280 *ml* | sugar syrup |
| 280 *ml* | strong tea | 160 *ml* | lemon juice |
| 560 *ml* | orange juice | lemon slices | |

**Mark** the volumes of the ingredients for this Fruit Punch **in the measuring jugs**.
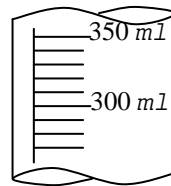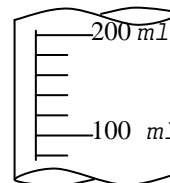The first one is done for you.
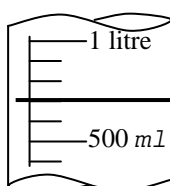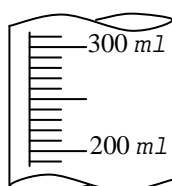


ginger ale        strong tea        orange juice        sugar syrup        lemon juice
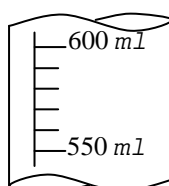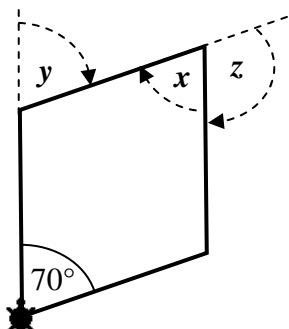
(4 marks)

**Name:** _____     **Class:** _____

**5.**
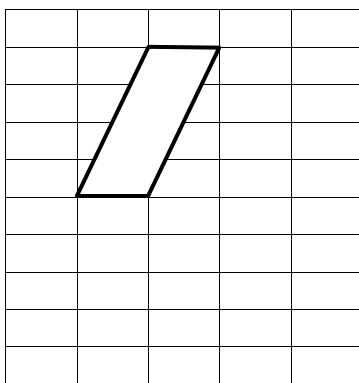


This quadrilateral is a **rhombus**.

a) Find the marked angles:

$x =$ _____°     $y =$ _____°     $z =$ _____°

b) Complete the repeat command in LOGO to draw the shape if each side is **50** turtle steps long.

PD REPEAT _____ [ FD  50  RT ___  FD ___  RT ___ ]

(6 marks)

**6.**



a)   The shape in the grid has _____ line/s of symmetry. (0, 1, 2, 3, 4)
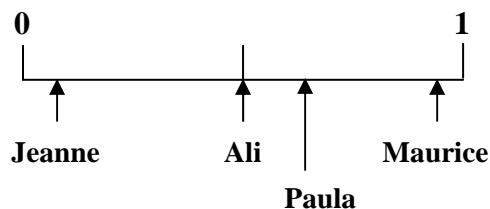
b)   It has rotational symmetry of order _____ . (1, 2, 3, 4)

c)   Make a tessellation using this shape. (Draw at least 6 more shapes.)

(4 marks)

**7.**     a)   The **probability** of four people going abroad these summer holidays is shown below.



i)  Who is **most likely** to be going abroad this summer? _____

ii) Is Paula likely or unlikely to go abroad? Explain.

_____

iii)What is Ali's probability of going abroad?  _____

**7.** b) A bag contains counters of different colours: red, black, yellow and orange.

Mona takes out a counter without looking.

She records its colour and replaces it.

She does this several times. These are her results:

| Colour | Red | Black | Yellow | Orange |
|--------|-----|-------|--------|--------|
| Frequency | 7 | 3 | 8 | 5 |

i) How many times in all does Mona draw a counter?          _____ times.

ii) From Mona's results, what is the **probability** that she draws a **black** counter?

_____

(5 marks)

**8.** The pie chart below shows how Michael uses his **€24** pocket money.
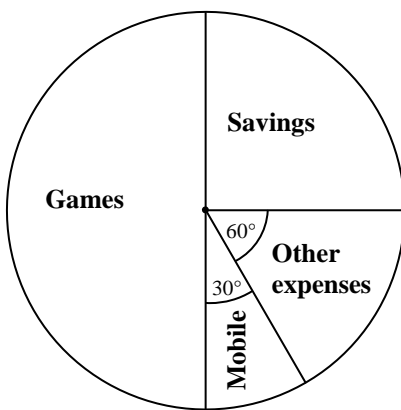
a)          How **much** does he spend on **games**?

**€**_____

b)          What **fraction** does he **save**?

c) Michael shows how he uses his €24 pocket money on a bar chart. Complete the bar chart.
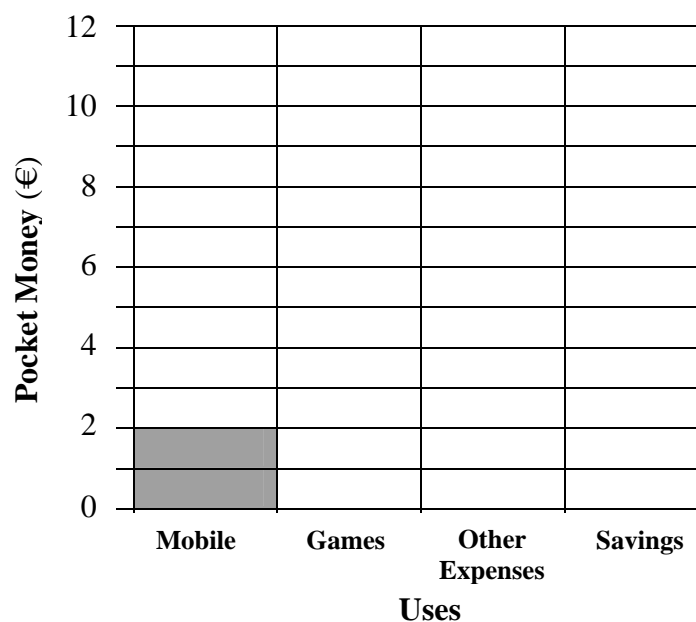
(4 marks)

**9.** Line (**p**) and line (**q**) are shown in the grid below.
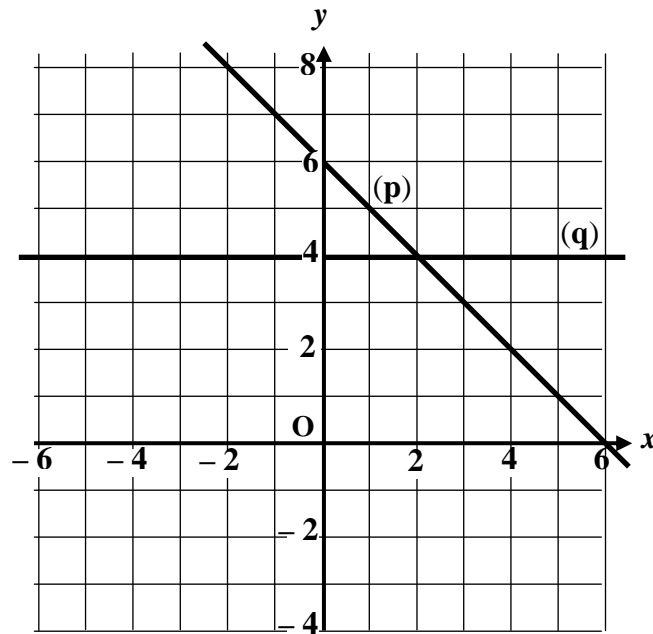


a) Complete the **coordinates** of the points that lie on **line** (**p**). ( 1 , 5 ) ( 4, ___ ) ( ___, 0)

b) Complete the **equation** of **line** (**p**) using $x$ and $y$. _____ = 6

c) Write the coordinates of any 2 points that lie on **line** (**q**). (___,___) ( ___,___)

d) Write the coordinates of the point where **line** (**p**) and **line** (**q**) **meet**. (___,___)

(7 marks)

**10.** Patrick is 8 years old and his sister Anna is 4 years **older**.

a) Write and **simplify** the **ratio** of Patrick's age to Anna's age.

Patrick : Anna

_____ : _____

= _____ : _____

b) Uncle John gives them **€100** to share in the **ratio of their ages**.

How much does **Patrick** receive?

€ _____

(5 marks)

**11.** a) Describe triangle **D** using **two** of the following terms:
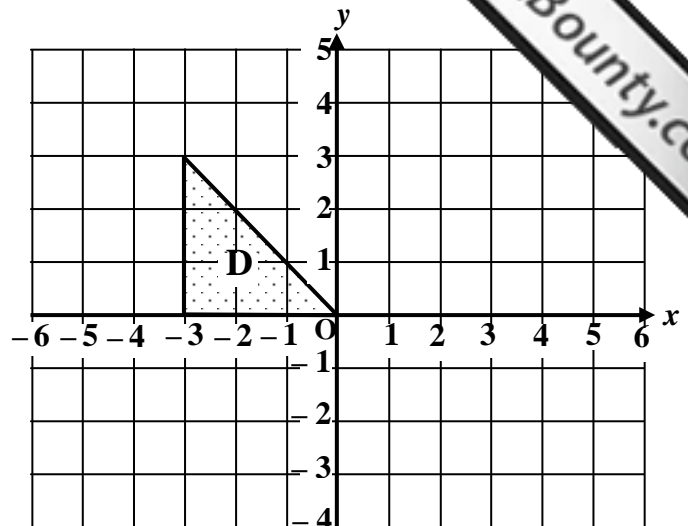
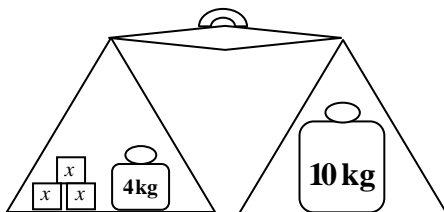| Acute-angled | Obtuse-angled | Right-angled |

| Isosceles | Equilateral | Scalene |

Triangle D is:

_____ and _____

b) Reflect triangle **D** in the $y$ axis. Label it **E**.

c) **Rotate** the triangle **D** about O through 180°. Label it **F**.

d) Translate triangle **D, 3 down**. Label it **G.**

(4 marks)

**12.** a) Sandra is weighing some tins, using scales. The tins weigh $x$ kg each.

Which equation represents the scales shown? (It helps if you remove brackets first.)

(i) $4(x + 1) - x = 10$

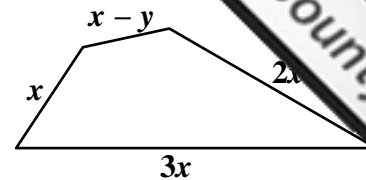(ii) $4(x - 1) = 10$

(iii) $3x + 4x = 10$

(iv) $4x + 3 = 10$

The right equation is _____

b) Solve the equation: $3p - 5 = 2p + 6$

$p =$ _____

(4 marks)

**13.** a) Write down and **simplify** an expression for the **perimeter** of the quadrilateral

$x - y$

$x$

$2x$

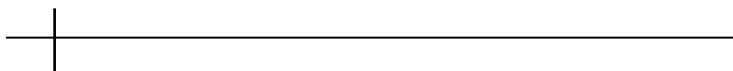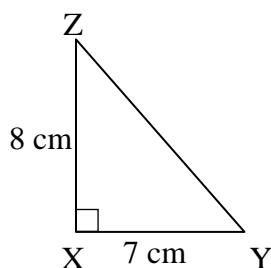b) What is the perimeter when $x = 4$ cm and $y = 1$ cm?

$3x$

Perimeter = _____ cm

c) Miriam said that when $x = 1$cm, $y = 1$ cm. Is this possible? Explain.

Yes/No, _____ .

(5 marks)

**14.** a) Using ruler and compasses only, make an accurate drawing of the triangle XYZ.

Z

8 cm

X   7 cm   Y

b) Measure side YZ and angle Y
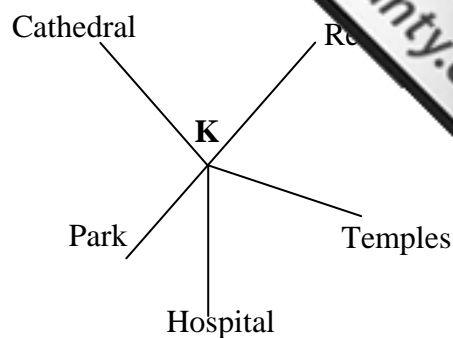
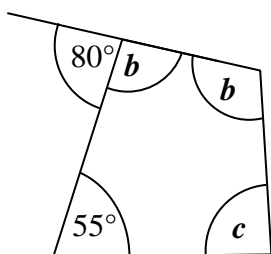YZ = _____ cm          angle Y = _____ °

(6 marks)

**15.** a) Karl is at point K.

   (i) What does he see when he faces South West?

   _____

   (ii) Write as a **three figure bearing** the position
   of the **hospital** from Karl.

   _____



Cathedral

Re

**K**

Park

Temples

Hospital

b) Find the value of **b** and **c** in the diagram.
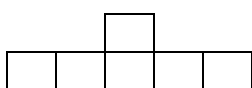


80° **b**

**b**

55°

**c**
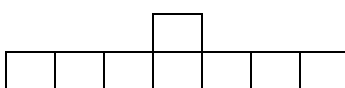
$b = $ _____ °

$c = $ _____ °

(6 marks)

**16.**
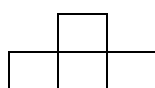


Pattern
1

Pattern
2

Pattern
3

Pattern
4

a) Draw pattern 4.

b) Continue: Each pattern has _____ rectangles more than the one before it.

c) How many rectangles will there be in the 6$^{th}$ pattern? _____ rectangles.

(3 marks)