



# Comórtas Sóisearach Matamaitice Éireann 2012

Organised by

*The Irish Mathematics Teachers Association*

## First Round

*Time : 40 minutes*

### Instructions

1. Do not open the examination until you are told to do so.
2. **You are permitted to use a calculator but not graph (squared) paper.** You may use rulers, compasses and paper for rough work.
3. Be certain that you understand the coding system for your answer sheet. If you are not sure, ask your teacher to explain it.
4. This is a multiple choice test. Each question is followed by five possible answers marked **A,B,C,D** and **E**. Only one of these is correct. When you have decided on your choice, enter the appropriate letter on your answer sheet for that question.
5. **Scoring:**  
Each answer is worth 5 marks in Section A, 6 marks in Section B, and 8 marks in Section C.  
There is **no penalty** for an incorrect answer.  
Each unanswered question is worth 2 marks to a maximum of **6 marks**.
6. Diagrams are not drawn to scale. They are intended as aids only.
7. When your teacher instructs you to begin , you will have 40 minutes of working time.

**Irish Junior Mathematics Competition 2012**

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## Section A (5 MARKS)

- 1) In a restaurant, the starter costs €4, the main course €9 and the dessert €5. The MENU, which is the starter + main course + dessert costs €15. How much would be saved if you ordered the MENU instead of the three separate courses?

(A) €3 (B) €4 (C) €5 (D) €6 (E) €7

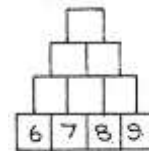
- 2) If 4 litres of apple juice are mixed with 5 litres of cranberry juice and 3 litres of pineapple juice, what part of the total mixture is apple juice ?

(A)  $\frac{1}{6}$  (B)  $\frac{1}{4}$  (C)  $\frac{1}{3}$  (D)  $\frac{4}{9}$  (E)  $\frac{2}{3}$

- 3) What must 0.05 be divided by to get 50?

(A) 0.0001 (B) 0.001 (C) 0.1 (D) 100 (E) 1000

- 4) In each box you must write the sum of the numbers in the two boxes directly below it. What number should be written in the top box?



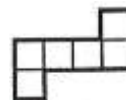
(A) 48 (B) 50 (C) 56 (D) 60 (E) 64

- 5) A student has an average score of 80 on her first four tests. What must she score on her next test to raise her average to 82?

(A) 82 (B) 84 (C) 86 (D) 90 (E) 92

## Section B (6 MARKS)

- 6) The figure shown consists of 6 congruent squares. The area of the figure is  $96 \text{ cm}^2$ . The perimeter of the figure in cm is



(A) 16 (B) 24 (C) 56 (D) 63 (E) 96

- 7) A sofa costs €600. Its price is increased by 10% and later reduced by 15%. What is the final price of the sofa?

(A) €550 (B) €570 (C) €561 (D) €595 (E) €580

- 8) Look at the numbers listed in the answers below. Which of them is the largest that could be the perimeter of some triangle of which two of the sides have lengths 4 and 5 ?

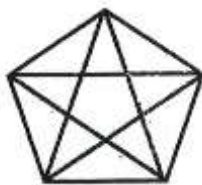
(A) 13 (B) 15 (C) 17 (D) 19 (E) 21

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- 9) Three planets revolving in the same direction around the same star are in a straight line with the star. The first planet completes one revolution in 4 years, the second one in 6 years and the third one in 9 years. In how many years will the three planets return to their current position in a straight line with the star?
- (A) 18 (B) 24 (C) 30 (D) 36 (E) 42
- 10) If  $x = \frac{1}{2}$  what is the value of  $\frac{1}{x + \frac{1}{x}}$  ?
- (A)  $\frac{2}{5}$  (B)  $\frac{9}{10}$  (C)  $\frac{10}{9}$  (D)  $\frac{5}{2}$  (E)  $\frac{1}{2}$

### Section C (8 MARKS)

- 11) A cubical box without a top has a side 4 cm long. The box contains 64 identical 1 cm cubes that exactly fill the box. How many of these small cubes actually touch the box?
- (A) 12 (B) 16 (C) 48 (D) 52 (E) 64
- 12) Jackie has 27 pencils of four colours: red, blue, yellow and green. There are twice as many red pencils as blue pencils, and twice as many blue pencils as green pencils. If the number of green pencils is even how many yellow pencils does she have?
- (A) 9 (B) 10 (C) 11 (D) 12 (E) 13
- 13) How many natural numbers between 100 and 1000 have 3 different digits?
- (A) 504 (B) 648 (C) 720 (D) 729 (E) 738
- 14) A zebra crossing has white and black stripes, all of breadth 50 cm. On a road the crossing starts and ends with a white stripe. If the crossing has 8 white stripes what is the breadth of the road?
- (A) 7 m (B) 7.5 m (C) 8 m (D) 8.5 m (E) 9 m
- 15) How many triangles are in the diagram below?



- (A) 20 (B) 25 (C) 30 (D) 35 (E) 40