

Comórtas Sóisearach Matamaitice Éireann 2013

Organised on behalf of

The Irish Mathematics Teachers Association
(IMTA)

First Round

Time : 40 minutes

Instructions

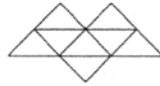
1. Do not open the examination until you are told to do so.
2. **You are permitted to use a calculator but not graph (squared) paper.** You may use rulers, compasses and paper for rough work.
3. Be certain that you understand the coding system for your answer sheet. If you are not sure, ask your teacher 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 2013

Section A (5 Marks)

- 1) A child drinks a litre of water a day. At the same rate how many days would it take 12 children to drink 12 litres ?

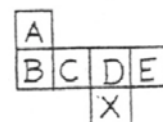
- (A) 1 (B) 2 (C) 4 (D) 6 (E) 12
- 2) A shop sells cakes. Each cake costs the same price and two cakes cost €8. How much would three cakes cost?
- (A) 4 (B) 8 (C) 10 (D) 12 (E) 16
- 3) How many whole numbers between $-\frac{20}{7}$ and $\frac{6}{5}$?
- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5
- 4) What is the average of $\frac{2}{3}$ and $\frac{4}{9}$?
- (A) $\frac{1}{2}$ (B) $\frac{2}{9}$ (C) $\frac{7}{9}$ (D) $\frac{3}{4}$ (E) $\frac{5}{9}$
- 5) How many triangles in the the diagram below?



- (A) 9 (B) 11 (C) 12 (D) 15 (E) 18

Section B (6 marks)

- 6) A farmer wants to build a fence around his orchard. There has to be a post at every corner and additional posts every 3m between the corners. If his field is 60 m wide and 72 m long how many posts will he need?
- (A) 84 (B) 88 (C) 92 (D) 96 (E) 98
- 7) A number is a palindrome if it reads the same backwards and forward. For example 23432 is a 5 digit palindrome and 876678 is a six digit palindrome. How many four digit palindromes are there?
- (A) 90 (B) 91 (C) 95 (D) 99 (E) 100
- 8) A lorry is half full of gravel. Another 2 cubic meters of gravel is put in the lorry making the lorry two thirds full. How many cubic meters of gravel can the truck hold?
- (A) 4 (B) 6 (C) 8 (D) 10 (E) 12
- 9) A piece of paper containing six joined squares labelled as shown is folded to form a cube. What letter is opposite the letter X?



- (A) A (B) B (C) C (D) D (E) E

10) The sum of the largest and smallest of the fractions below is

$$\frac{2}{9}, \frac{1}{2}, \frac{2}{3}, \frac{3}{5}, \frac{4}{7}$$

- (A) $\frac{15}{14}$ (B) $\frac{11}{10}$ (C) $\frac{8}{9}$ (D) $\frac{37}{45}$ (E) $\frac{41}{35}$

Section C (8 Marks)

11) A group of 18 people went to a hotel for a dinner. Each chose a €6 meal, but four of them left without paying. In order to pay the bill how much extra did each of the others have to pay?

- (A) €8 (B) €10 (C) €12 (D) €15 (E) €16

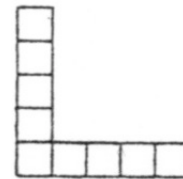
12) $1 + \frac{1}{3 + \frac{1}{5 + \frac{1}{7}}}$ is equal to

- (A) $\frac{164}{139}$ (B) $\frac{143}{117}$ (C) $\frac{137}{108}$ (D) $\frac{151}{115}$ (E) $\frac{183}{142}$

13) Joe runs twice as fast as he walks. Joe walked 1 km to a shop and then ran back. His total time moving was 20 minutes. How fast, in km/h, did Joe run?

- (A) 4 (B) 4.5 (C) 6 (D) 9 (E) 13.3

14) Lucy wishes to cut this shape, which is made of nine small squares, into pieces that she can arrange to make a 3 x 3 square. What is the smallest number of pieces that she needs to cut the shape into so that she can do this?



- (A) 2 (B) 3 (C) 4 (D) 5 (E) 6

15) Thirteen plums weigh as much as two apples and one pear. Four plums and one apple have the same weight as one pear. How many plums have the same weight as one apple?

- (A) 1 (B) 3 (C) 6 (D) 7 (E) 8