



# Comórtas Sóisearach Matamaitice Éireann 2014

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 2014**

**Section A (5 Marks)**

- 1) How many seconds are there in sixty two minutes?  
(A) 62 (B) 3602 (C) 3620 (D) 3680 (E) 3720
- 2) Sea water consists of a mixture of salt and fresh water.  
The masses of salt and fresh water in a certain area are in the ratio 7 : 193.  
How many kilograms of salt are there in 1000 kg of sea water?  
(A) 35 (B) 186 (C) 193 (D) 200 (E) 350
- 3) The sum of the ages of Amy, Brian and Conor is 31 years.  
What will be the sum of their ages in three years time?  
(A) 32 (B) 34 (C) 35 (D) 37 (E) 40
- 4) The sum of ten numbers is 2624. If one of the numbers is changed from 456 to 654, the new sum is  
(A) 2168 (B) 2426 (C) 2812 (D) 2822 (E) 3278
- 5) How many even whole numbers are between  $\frac{17}{4}$  and  $\frac{47}{2}$ ?  
(A) 4 (B) 5 (C) 6 (D) 8 (E) 9

**Section B (6 Marks)**

- 6) On the way to a match, the team bus travelled at 60 km/h for 45 minutes, 30 km/h for 30 minutes and 50 km/h for one hour.  
What was the average speed per km (to nearest km) travelled by the bus?  
(A) 47 (B) 49 (C) 50 (D) 52 (E) 53
- 7) Jim bought a shirt for €13.98 and gave the cashier €20. By mistake the cashier gave Jim back €13.98 in change. In order to correct the error, the amount, in euros, that Jim should return to the cashier is  
(A) 6.02 (B) 6.96 (C) 7.96 (D) 12.04 (E) 13.98
- 8) One plant is now 21 cm tall and will grow at 2 cm per week. A second plant is now 3 cm tall and will grow at 5 cm per week. The time, in weeks, for the two plants to reach the same height is

- (A) 3 (B) 4 (C) 6 (D) 9 (E) 18
- 9) A €100 article is reduced by 20% for a sale. In order to restore the price to €100, the percentage by which the sale price must be increased is
- (A) 20 (B) 22.5 (C) 25 (D) 30 (E) 125
- 10) The value of  $(3\frac{1}{3})^2$  is
- (A)  $11\frac{1}{9}$  (B)  $9\frac{1}{9}$  (C)  $6\frac{2}{3}$  (D)  $\frac{100}{3}$  (E)  $\frac{101}{9}$

**Section C (8 Marks)**

- 11) At a match the stadium was 95% full. There were 19950 people at the match. How many empty seats were there?
- (A) 210 (B) 1050 (C) 19740 (D) 19950 (E) 18953
- 12) A bag contains balls of five different colours. Two are red, three are blue, ten are white, four are green and three are black. Balls are taken from the bag without looking and not returned. What is the smallest number of balls that should be taken from the bag to be sure that two balls of the same colour have been taken?
- (A) 2 (B) 12 (C) 10 (D) 5 (E) 6
- 13) A driver stopped for petrol when her car was  $\frac{1}{8}$  full. She bought 40 litres of petrol for €60. She then noticed that her tank was  $\frac{3}{4}$  full, so she filled it completely. How much did she pay for the final  $\frac{1}{4}$  to fill the tank?
- (A) €12 (B) €24 (C) €30 (D) €36 (E) €48
- 14) A 10m by 15m house is built on a 20m by 40m piece of land. The remainder of the land consists of a driveway and lawn. If the lawn occupies 80% of the remainder of the land, then the area of the lawn, in square metres is
- (A) 130 (B) 280 (C) 520 (D) 650 (E) 800
- 15) All the faces of 64 identical small cubes are first painted white. Then one big cube is made by combining all of these small squares. All six faces of the big cube are then painted black. How many of the 64 small cubes have exactly two black faces?
- (A) 12 (B) 24 (C) 28 (D) 32 (E) 48

