Comórtas Sóisearach Matamaitice Éireann 2011

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 2011

Section A (5 Marks)

1) On a multiple choice test there are 100 questions. One of the five   choices is correct.
   What is your most likely score if you **guessed** each answer?

   (A)   10   (B)   20   (C)   40   (D)   50   (E)   100

2) A 40 minute lesson started at 11: 50. Exactly at the middle of the lesson the fire alarm went off. At what time did this happen?

   (A)   11: 30 (B)   12: 00 (C) 12: 10 (D) 12.20   (E) 12:30

3) What is the value of $(1+\frac{1}{2})(1+\frac{1}{3})$

   (A) $\frac{1}{6}$ (B) $\frac{2}{3}$ (C) $\frac{11}{6}$ (D)   2   (E)   3

4) If $\frac{3}{4}$ of a cup of bird seed can feed 5 birds, how many birds can be fed with 6 cups of bird seed?

   (A)   35   (B)   40   (C)   45   (D)   50   (E)   55

5) For what value of x is $\frac{1}{x} = -3$?

   (A)   -3   (B) $-\frac{1}{3}$ (C) $\frac{1}{3}$ (D)   3   (E)   6
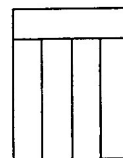
Section B (6 Marks)

6) The passengers on an airplane consisted of 12 children of various nationalities, 16 Irish including 3 of the 12 children and 24 Americans, including 5 of the 12 children.
    There were no other passengers. How many passengers were aboard the airplane?

   (A)   28   (B)   29   (C)   32   (D)   36   (E**)** 44

7) To make a newspaper with 60 pages you need 15 sheets of paper which are on top of each other. Then they are folded together.
   page 7 is missing. Which other pages are missing from this newspaper?

   (A) 8,9,10   (B) 8, 42,43 (C)   8,48,49 (D) 8,52, 53 (E) 8,53,54

8) In how many ways can you arrange four different paintings in a line on a wall?

   (A)   12   (B)   24   (C)   36   (D)   48   (E)   64

9)   The average of four numbers is 24. If the largest number is left out, the average is 20.
      If the smallest is left out , the average is 30.
      What is the average of the two middle numbers?

      (A)   25   (B)   26   (C)   27   (D)   28   (E)   29

10)   A number like 23 is a two digit number. Its digits are 2 and 3. The product of a
      certain two digit number and its digits in the reverse order is 1855. What is the
      sum of the digits of the number?

      (A)   8   (B)   9   (C)   10   (D)   11   (E) 12

Section C (8 Marks)

11)   Sheila read one quarter of a book on Monday. On Tuesday she read one
      quarter of the of the remaining pages. On Wednesday she read one quarter of
      the pages she had not yet read. On Thursday she read the final 81 pages. How
      many pages are in the book?

      (A)   192   (B)   243   (C)   256   (D)   324   (E)   446

12)   Last year Tom was twice as old as Mike. This year the sum of their ages is 65.
      How old is Tom now?

      (A)   22   (B)   32   (C)   41   (D)   42   (E)   43

13)   Jar A contains six red marbles and no green marbles. Jar B contains two red
      marbles and four green marbles . How many green marbles must be moved
      from Jar B to Jar A so that the ratio of green marbles to red marbles is the
      same for both jars?

      (A)   0   (B)   1   (C)   2   (D)   3   (E)   4

14)   Susan has 16 coins. All are either 5 cent coins or 10 cent coins.
      If the total amount she has is €1.05 how many 5cent coins has she got?

      (A)   7   (B)   9   (C)   11   (D)   13   (E)   15

15)   The large rectangle shown is made up

       of five congruent rectangles, each with
      whole number dimensions. If the perimeter
      of each smaller rectangle is 20 cm, the area
      of the whole of the entire large rectangle in cm^2 is

      (A)   80   (B)   84   (C)   120   (D)   125   (E)   400