**Fiji Mathematics Team Competition – National Final**

**Form 4 – 2013**

F4/1 What is the value of ?

F4/2 The first few terms of a sequence are 1 , 2 , 5, 10, 17,….. A possible value for the

seventh term of the sequence is

F4/3 Six friends are living in an apartment together and they evenly split the monthly

rent of three thousand dollars. By how many dollars does each person’s share of the monthly rent increase if one person moves out?

F4/4 Mrs. Singh has three times as many girls as boys in his class. Mrs. Naidu has

twice as many boys as girls in her class. Mrs. Singh has 60 students in his class and Mrs. Naidu has 45 students. If the classes are combined into one class, what is the ratio of boys to girls (in the simplest form)?

F4/5 A factory manufactures dresses and shirts; 3 dresses are manufactured for every 4 shirts. In a week the factory produced a total of 420 dresses and shirts. How many of these were dresses?

F4/6 At a university’s graduation ceremony, 690 names are to be read at a pace of

one name every 10 seconds. How many minutes will it take to read all of the

names?

F4/7 The surface area of a cube is 96 cm2 . Find the volume of the cube, in cm3?

F4/8 An island has of its surface covered by forest and of the remainder of its

surface by sand dunes. The island also has 90km covered by farm land. If the island is made up of only forest, sand dunes and farm land, what is the total area of the island, to the nearest km?

F4/9 A train consists of five wagons: I, II, III, IV and V. How many ways can the wagons be arranged so that wagon I is nearer to the locomotive than wagon II is?

F4/10 Anita is 7 years younger than Sarita. In 4 years time she will be half Sarita’s age. What is the sum of their ages now?

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F4/11 Look at the numbers 1*,* 2*,* 3*,* 4*, . . . ,* 100. What percent of these numbers is a

perfect square?

F4/12 If you choose three numbers from the grid shown, so that you have one number from each row and also have one number from each column, and then add the three numbers together, what is the largest total that can be obtained?



F4/13 A two digit number, less than 100, reduces by 45 if the order of the digits is reversed. What is this number?

F4/14 Mere purchases a $1000 savings bond which earns 10% interest every year.

Calculate the interest Mere has accumulated at the end of five years.

F4/15 In a school, 500 students voted on each of two issues. Of these students, 375

voted in favour of the first issue, 275 voted in favour of the second, and 40 students voted against both issues. How many students voted in favour of both issues?

F4/16 A slow train travelling from City A to City B arrives 9 minutes late when

travelling at 36 km/h. If it travels at 27 km/h it arrives 39 minutes late. What is the distance between City A and City B?

F4/17 A rabbit is inside the end of a tunnel 30 bunny-hops long. He hops once every

minute, always taking first three hops forward and then two hop backwards from the mouth of the tunnel. How many minutes does it take before he reaches the mouth of the tunnel?

F4/18 Rima’s average for her first 4 tests is 67%. In her next 2 tests she obtained 63%

and 67%. What is her average now (to the nearest whole number)?

F4/19 A reservoir is full. If 135 litres of water is added, the reservoir is full. What is

the capacity of the reservoir when full?

F4/20 There are 15 pebbles in a single pile. In each move, we divide a pile with at least

two pebbles into two piles, and write down the product of the numbers of

pebbles in the two newly created piles. After 14 moves, the pebbles are in 15

separate piles. What is the sum of the 14 numbers that has been written down?

Tie Breaker:

F4/21 In the diagram, four equal circles fit perfectly inside a square; their centres are the

vertices of the smaller square. The area of the smaller square is 16cm2. What is the perimeter of the larger square?

F4/22 Harriet Hare and Turbo Tortoise want to cross the finish line together on their 12

mile woodland race. Turbo sets off at 8:15a.m and trots at a constant speed of

4 mph. Given that Harriet runs at a constant speed of 8 mph, at what time should

she set off?