**Fiji Mathematics Team Competition – National Final**

**Form 5 – 2013**

F5/1 The number 10100 is a *googol* and number 10000n is also a *googol*. What is the value of n?

F5/2 A student uses a calculator to find an answer but instead of pressing the ( key

she presses the key by mistake. The students’s answer was 9. What should

the correct answer be?



F5/3 Successive discounts of 10% and 20% are equivalent to a single discount of:

F5/4 Six bells commence tolling together and toll at intervals 2,4,6,8,10 and 12 seconds

respectively. In 30 minutes how many times they toll together?

F5/5 There are 2 girls and 6 boys playing a game. How many additional girls must join

the game so that of the players are girls?

F5/6 In a student council election, Sahiba received 60% of the votes and Abdul

received all the rest. Sahiba received 55 more votes than Abdul. How many students voted?

F5/7 Three blocks and one top balance 15 marbles. One top balances one block and

seven marbles. Find the number of marbles that balance one top.

F5/8 Carly takes three steps to walk the same distance as Jim walks in four steps. Each

of Carly’s steps covers 0.5 metres. How many metres does Jim travel in 24 steps?

F5/9 A six-team league has a schedule that requires each team to play every other team

four times. The total number of games in the league schedule is:

F5/10 The average of three numbers is 18. If the largest number is replaced by the

number 38 then the average of the three numbers is 23. What is the original number that is replaced?

F5/11 In a High school there are two Form 5 classes with the same number of students

in each. The ratio of girls to boys in one Form 5 is 1 : 2 and in the other Form it is 3 : 2. What is the ratio of girls to boys in the entire Form 5?

F5/12 Find the sum of the prime factors of 1591.

F5/13 Five straight lines are drawn on the plane. The maximum possible number of

intersection points of the five lines is:

F5/14 I am three times as old as my son. Five years later I shall be two and a half times

as old as my son. What is my age?

F5/15 Two squares have a total area 85cm2 and total perimeter 52 cm. What is the area

in cm2 of the larger square?

F5/16 If 6 and *x* have the same mean as the set {2, 4, 24}, what is the value of *x*?

F5/17 A bottle of *Tasty* *Lime* makes enough drink to fill sixty glasses when it is diluted in the ratio 1 part *Tasty* *Lime* to 4 parts water. How many full glasses of drinks it would make when diluted in the ratio 1 part *Tasty* *Lime* to 5 parts water?

F5/18 If I place a 6cm x 6cm square on a triangle, I can cover up to 60% of the triangle.

If I place the triangle on the square, I can cover up to of the square. What is the

area, in cm2, of the triangle?

F5/19 Two trains are approaching each other on a long straight section of track. One train is going 5 kilometres per hour and the other is going 3 kilometres per hour. At the time when the trains are 3 kilometres apart a mosquito starts flying from the front of the slower train towards the faster train. When it reaches the faster train it immediately turns around and flies back towards the slower train. If the trains are one kilometre apart when the mosquito first returns to the slower train, what is the speed at which the mosquito is flying, measured in kilometres per hour?

F5/20 Of the students in a class 17 can ride a bicycle, 13 can swim and 8 can ski. No

student is able to perform all three of these activities. All the bicyclists, swimmers and skiers have received a grade C or better in the class. Six students in the class received a grade less than C. Determine the smallest possible number of students in the class.

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Tie Breaker:

F5/21 A bank robber hops into his getaway car and travels at an average speed of

60 mi/h into the countryside. Exactly two minutes after the robber leaves the

bank, a police officer follows him from the bank along the same route. If the

officer is traveling at an average speed of 75 mi/h, how far from the bank will

the robber be intercepted?

F5 /22 What is the value of (9 + 12 + 15 + 18)3 − ((−9) + (−12) + (−15) + (−18))3 ?