**Fiji Mathematics Team Competition – National Final**

**Form 6 – 2013**

F6/1 There are how many prime numbers between 70 and 100?

F6/2 John ate a total of 120 peanuts over four consecutive nights. Each night he ate 6 more

peanuts than the night before. How many peanuts did he eat on the fourth night?

F6/3 If *u*  = -6 and *x* = (3 – 4*u*), then x equals

F6/4 Raina sold two DVDs on eBay for $24 each. If she made a profit of 20% on one and a loss

of 20% on the other, then how much profit **OR** loss is made in dollars on the sale of the

two items?

F6/5 A can of mixed nuts consists of 30% peanuts, 20% almonds, 15% cashews, 15% walnuts, and the rest pecans. If all of the almonds are removed then the percent of pecans in the remainder is

F6/6 In the figure the number 8 is obtained by adding the two numbers directly below it. The

other numbers in the top three rows can be obtained in the same way. What is the value of x?



F6/7 If 2 x 103 is represented as 2*E*3 on a certain calculator, how would the product of 2*E*3

and 3*E*2 be represented?

F6/8 In how many ways can we arrange three As and eight Bs so that what we get reads the same way forwards and backwards?

F6/9 A man bought a number of equally-priced chickens for $480. After three of the chickens

died, the man sold the remaining chickens for identical integer dollar amounts, making a profit of $15 for the entire transaction. If the price the man paid for each chicken was $1 less than the price for which he sold each chicken, then how many chickens did the man originally buy?

F6/10 If *P* = 32000 + 3-2000 and *Q* = 32000 – 3-2000 then the value of *P*2 – *Q*2 is

F6/11 Two triangles, with given side lengths are shown. To paint triangle A you need 4 ml of paint. How many ml of paint is needed to paint triangle B?



F6/12 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?

F6/13 Three painters can paint 4 houses in 5 days. To the nearest whole number of days, how

long would it take 7 painters to paint 18 houses if all the work was done at the same rate all the time?

F6/14 A woman with a basket of eggs finds that if she removes the eggs from the basket 2, 3, 4, 5 or 6 at a time, there is always one egg left. However, if she removes the eggs 7 at a time, there are no eggs left. If the basket holds up to 500 eggs, how many eggs does the basket hold?

F6/15 In the diagram *ABCD* is a square with side length 4. What fraction (in simplest form) of the total area of the square *ABCD* is shaded?



F6/16 There are 30 people in a room, 60% of whom are men. If no men enter or leave the

room, how many women must enter the room so that 40% of the total number of

people in the room are men?

F6/17 In a sequence, every term after the second term is twice the sum of the two preceding terms. The seventh term of the sequence is 8 and the ninth term is 24. What is the eleventh term of the sequence?

F6/18 There are four cowboys in a saloon. At midnight, each cowboy randomly chooses one of the other three cowboys and shoots him. What is the probability (in fraction) that exactly two cowboys are shot?

F6/19 In 2011, Rihana downloaded 200 songs. In 2012 she downloaded 360 songs at a cost per

song which was 32 cents less than in 2011. Rihana’s total cost each year was the same. What was the cost of downloading the 360 songs in 2012?

F6/20 The expression (212 + 222 + 232 + …. + 402) - (202 + 192 + 182 + …. + 12) has a value of…

Tie Breaker:

F6/21 There are twice as many liters of water in one container as in another. If 8 liters of water

are removed from each of the two containers, there will be three times as many liters of water in one container as in the other. How many liters of water did the smaller container have to begin with?

F6/22 The numbers 6,14,*x*,17,9,*y*,10, have a mean of 13. What is the value of *x+ y*?