**Fiji Mathematics Team Competition - Zone**

**FORM 5 – 2013**

F5/1 What is the greatest number of Mondays that can occur in 45 consecutive days?

F5/2 If 60 marbles are divided into 3 piles in the ratio 1:3:6, how many marbles are in the largest pile?

F5/3 Ravi sleeps , eats and works of the day. How many minutes in his day are

unaccounted for?

F5/4 The product of two numbers is equal to the product of two other numbers. Three of these four numbers are 3, 4 and 12. The number of possible values of the fourth number is

F5/5 The set S = {1; 2; 3; : : : ; 49; 50g} contains the first 50 positive integers. After the

multiples of 2 and the multiples of 3 are removed, how many numbers remain in the set S?

F5/6 A tank is full of gasaoline. If 8 litres of gas are added then the tank is full.

What is the total capacity of the tank in litres?

F5/7 Each of the numbers 144 and 220 is divided by the positive integer N, giving a remainder of 11 in each case. What is the value of N??

F5/8 In a race, Robert places exactly in the middle among all participants. Ray who placed 10th finishes behind Robert. Jim places 16th. What is the number of participants?

F5/9 Diana is trying to row her boat 20 miles up a river from the starting line to

the finish line of a race. Diana starts out each morning at 7 a.m. and rows 10

miles upstream. Each night she floats 5 miles downstream. How many days will

it take for Diana to get to the finish line?

F5/10 A video tape costs $10 and sells at $16 for a 60% profit. A video disc sells for a

40% profit. If we sell one and a half times as many video tapes as video discs, the combined profit is 50%. How much does a video disc cost?

F5/11 A farmer has 7 cows, 8 sheep and 6 goats. How many more goats should be

bought so that half of her animals will be goats?

F5/12 The perimeter of a particular rectangle is 18 cm, and the length of the rectangle

is one-third its perimeter. What is the width of the rectangle?

F5/13 Rosie has 6 pairs of pants and 10 shirts. She buys 2 more pairs of pants. How

many more outfits can Rosie make now?

F5/14 Two squares have total area 85 cm2 and total perimeter 52 cm. What is the area in

cm2 of the larger square?

F5/15 Three stones are weighed on a scale, two at a time. The sacale shows weights of

49 kg, 63kg and 80 kg. How much does the heaviest stone weigh?

F5/16 On each day of the week except Sunday, 8 students are on patrol duty. In each day, there are exactly 3 students who are on duty only on that day. What is the maximum number of students who are on duty during the week?

F5/17 As a waiter in a restaurant, Steven works 6-hour shifts. He earns $5 per hour and

keeps 80% of his tip money. How much tip money does he need to receive per shift to earn a total of exactly $50 before taxes are deducted?

F5/18 Richard needs to go from his house to the park by taking a taxi. There are two taxi

companies available. The first taxi company charges an initial cost of $10.00, plus

$0.50 for each kilometre travelled. The second taxi company charges an initial cost of $4.00, plus $0.80 for each kilometre travelled. Richard realizes that the cost to go to the park is the same regardless of which taxi company he chooses. What is the distance in km from his house to the park?

F5/19 In Billy's room there are four clocks. Each clock is either slow or fast. The first

clock is wrong by 2 minutes, the second clock by 3 minutes, the third by 4 minutes and the fourth by 5 minutes. One day Billy wanted to know the exact time by his clocks, which read 6 minutes to 3, 3 minutes to 3, 2 minutes past 3, and 3 minutes past 3. What was the exact time then?

F5/20 In the diagram, *PQRS* is a square and *M* is the midpoint of *PQ*. The area of

triangle *MQR* is 100 cm2. What is the area of the square *PQRS*?



Tie Breaker

F5/21 A car drove with constant speed of 90 km/h. When the car clock showed

21:00, the daily mileage recorder showed 116, meaning that up to that moment 116 km had been driven. Later that evening the mileage recorder showed the **same row of numbers** as the clock. At what time did that occur?

F5/22 The angles of a triangle are in ratio 2:3:5. What is the difference between the

largest angle and the smallest angle?