**FIJI MATHEMATICS TEAM COMPETITION**

**FORM 4 – 2013**

F4/1 Three positive integers are all different. Their sum is 7. What is their product?

F4/2 The prime numbers *p* and *q* are the smallest primes that differ by 6. What is the sum of *p* and *q*?

F4/3 A zebra crossing has alternate white and black stripes, each of width 50cm. The crossing starts and ends with a white stripe and has 8 white stripes in all. What is the total width of the crossing?

F4/4

Eighteen players advanced to the quarter finals of a tennis tournament. If this is 12.5% of those who entered the tournament, how many entered?

F4/5 In the diagram Δ*PQR* is an equilateral triangle. If *PQ* = 4*x* and *PR* = *x* + 12, what is the

value of *x*?



F4/6 What number comes next in the sequence: 4, 7, 13, 25, 49?

F4/7 If 60 marbles are divided into 3 piles in the ratio 1:3:6, how many marbles are in the largest pile?

F4/8 Of 100 students, 84 are taking Basic Science, 30 are taking Commerce, while 24 are taking both Basic Science and Commerce. How many of the 100 students are taking neither Basic Science nor Commerce?

F4/9 For work, Pauline rides the Metro twice a day for five days each week. Over a four week period in February, how much does she save by buying one $68 pass for February compared to buying a $2.25 one-ride ticket each time she rides the Metro?

F4/10 The solid in the diagram is formed of four cubes. The surface area of each cube is 24cm2.

Find the surface area of the solid.



F4/11 Robert has two watches, one which loses 6 seconds every 24 hours and one which gains 1 second per hour. He sets both of them to the correct time at 6 : 00 p.m. How many hours will pass before the positive difference between the time shown on both watches is 4 hours?

F4/12 Five congruent equilateral triangles are equally placed along a number line, as shown.

What fraction of the region is shaded? Give your answer to the simplest fraction.

**0**

**2**

**3**

**1**

**5**

**6**

**4**

F4/13 Among 14 items, the Nth item is worth $N. For example, the 3rd item is worth $3 and the

12th item is worth $12. These 14 items are shared among 3 friends so that the value of the

items that each friend receives is equal. What is the maximum number of items that one

person could receive?

F4/14 Six knights ate at a Small Round Table. After dinner, each knight shook hands once with

each knight who was NOT sitting next to him. What was the total number of

handshakes?

F4/15 In the diagram, Δ*PQR* has a right angle at *Q*. A square is drawn on each side of the

triangle. The area of the square on side *QR* is 144 cm2. The area of the square on side *PR*

is 169 cm2. What is the area of the square on side *PQ*?



F4/16 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?

F4/17 A rectangle with area 125 cm2 has sides in the ratio 4:5. What is the perimeter of the rectangle?

F4/18 18 pupils are crossing a road in pairs. The pairs are labeled from 1 to 9. A pair with

an even label consists of a boy and a girl, and a pair with an odd label consists of two boys. How many boys are crossing the road?

F4/19 Simpson wrote eight tests, each out of 100%. His average for the eight tests is 70%. If he

is allowed to drop the test with the lowest value, then what is the largest possible average Simpson can have after dropping the lowest test score?

F4/20 Meera has pencils and pens in two pencil cases, both of which are non-empty. In one

pencil case, the ratio of pencils to pens is 2:3. In the other pencil case, the ratio is 3:5. If Meera has 20 pencils in total, what is the least number of pens that she can have?

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Tie Breaker

F4/21 There are fewer than 6 dozen rocks in a collection. Grouping the rocks by 2s leaves 1

extra. Grouping them by 3s leaves 2 extra. Grouping by 4s leaves 3 extra. Grouping by 5s leaves 4 extra. How many rocks are in the collection?

F4/22 What is the sum of all whole number factors of 24?