**Fiji Mathematics Team Competition – Zone**

**Form 7 - 2013**

F7/1 What does the following expression equal to?

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| |  | | --- | | F7/2 How many different ways can we arrange the letters of SIX in a row? | |  | |  | |  | |
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F7/3 Paul , Harish, and Eremasi are computing with the primes. Paul calculates the

product of the first three primes and calls it A. Harish calculates the sum of the next five primes and calls it B. Eremasi calculates C = A× B. What is C?

F7/4 Kevin is given six sticks. They have lengths 1, 2, 3, 4, 5, and 6 feet, respectively. How many

distinct can Kevin form using these sticks, one for each side? (Two triangles are considered distinct if they have different side lengths).

F7/5 If *a* + *b* = 2 and *a*2  + *b*2 = 5, then what is the value of *a*3 + *b*3?

F7/6 Anna, Bill, and Carl started eating candies together. Anna and Bill ate 11 candies between the

two of them, Bill and Carl ate 15, while Anna and Carl ate 14. How many candies did Anna,

Bill, and Carl eat between the three of them?

F7/7 There are 29 people in a room. Of these, 11 speak French, 24 speak English and 3 speak *neither*  French nor English. How many people in the room speak *both* French and English?

F7/8 Five people need to travel in a 5-passenger car. There are a driver’s seat and a passenger seat in

the front and three passenger seats in the back: a left seat, a middle seat, and a right seat. Two

of the people are children and can sit only in the back. One of the three adults is busy reading

a math book and refuses to drive. In how many ways can they get seated?

F7/9 At an elementary school, some children ride tricycles and the remaining children ride bicycles. There is a total of 270 wheels at the school, and the number of children who ride bicycles is three times the number who ride tricycles. How many children are at the school?

F7/10 What is the sum of the distances *AD* and *BD* in the figure shown?



F7/11 Students in Mr Singh’s class had these scores on a test: 85, 84, 69, 91, 80, 77, 92, 96, 76.

Somehow Mr Singh had forgot to record Maria’s score but he knew the class mean with her score was 83. Find Maria’s score.

F7/12 There are 6 white socks and 10 red socks jumbled up in a box. If 2 socks are taken out at

random, what is the probability of having a matched pair, in simplest fraction?

F7/13 Suppose we draw 100 horizontal lines and 100 vertical lines in the plane. How many “pieces” of

the plane are formed by cutting along all of these lines? Note: some pieces will have infinite

area.

F7/14 When simplified as much as possible what does the following expression equal to?

F7/15 A store has a five-day sale where all merchandise is discounted by on the first day. Beginning

on the second day and each day thereafter, they take an additional 10% off the previous day’s price. What will you pay for an item on the third day if it cost $120 before the sale began? (round your answer to the nearest whole dollar)

F7/16 In a racing over a given distance at uniform speed, Rahul can beat Sam by 20 meters, Sam can beat Chris by 10 meters and Rahul can beat Chris by 28 meters. How many meters is the distance over which they are racing?

F7/17 In a certain school there are two Form seven classes with the same number of learners in each.

The ratio of girls to boy in one form is 1:2 and in the other form it is 3:2. What is the ratio of girls to boys in the entire Form seven? Give your answer in the simplest form.

F7/18 What is the smallest value of n for which the product (22 – 1)(32 – 1)(42 -1)…..(*n*2 -1) is a

perfect square?

F7/19 A certain set *S* has 24 more subsets than a second set *T*. What is the number of elements in set *S*?

F7/20 Twelve father and daughter pairs attended a Girl Guide barbecue. If each father shook hands with everyone except his own daughter and himself, what is the number of handshakes which involve at least one father?

Tie Breaker

F7/21 All twenty people in a business each have a direct phone line to every other person in the

business. When two new people join the business how many more direct phone lines must be installed?

F7/22 2002 – 2001 + 2000 – 1999 + …….. + 2 – 1 equals