

FLORENCE NIGHTINGALE DAY 12TH JANUARY 2017

QUIZ

Q1.

Alex, Ben, Charles and Dave want to cross a bridge. It is dark, and they have to light the path with a torch. No more than two people can cross the bridge together, and the group has only one torch. Alex crosses the bridge in 1 minute, Ben crosses the bridge in 2 minutes, Charles crosses the bridge in 5 minutes, Dave crosses the bridge in 10 minutes. How can the group cross the bridge in 17 minutes?

Q2.

The frame of a square painting is 30cm wide. The area of the painting is equal to that of the frame. What is the length of a side of the painting?

Q3.

You have three bags, each containing two marbles. Bag A contains two white marbles, Bag B contains two black marbles, and Bag C contains one white marble and one black marble.

You pick a random bag and take out one marble.

It is a white marble.

What is the probability that the remaining marble from the same bag is also white?

Q4. Covent Garden Problem, due to Samuel Loyd, 1841-1911

Mrs. Smith and Mrs. Jones had equal number of apples but Mrs. Jones had larger fruits and was selling hers at the rate of two for a penny, while Mrs. Smith sold three of hers for a penny.

Mrs. Smith was for some reason called away and asked Mrs. Jones to dispose of her stock. Upon accepting the responsibility of disposing her friend's stock, Mrs. Jones mixed them together and sold them off at the rate of five apples for two pence.

When Mrs. Smith returned the next day the apples had all been disposed of, but when they came to divide the proceeds they found that they were just seven pence short.

Supposing that they divided the money equally, each taking one-half, how much money did Mrs. Jones lose in this partnership?

Q5.

If we wrote down all numbers of 5 digits with all even digits, not starting with 0, and without repetitions of digits in a number, and listed them in increasing order, which would be the 50th number?

Q6.

A bicycle rider went a mile in three minutes with the wind, and returned in four minutes against the wind. How fast could he ride a mile if there was no wind?

Q7.

Andy has written a sequence of consecutive integers, starting from 1, on a blackboard. Bill comes after Andy has left and erases one of those in the list. Cathy comes after Bill has left and she calculates that the average of the numbers left on the board is $35 + \frac{7}{17}$. Which number has been erased?

Q8.

Find a 5 digits integer such that if we add a 1 in front (e.g. 33333 becomes 133333), then we get a number equal to a third to the number formed by the same 5 digits followed by a 1 (e.g. 33333 becomes 333331). Find the 5 digits number.

Q9.

Lizzie has drawn 100 segments of 1cm so as to obtain the maximum possible of equilateral triangles. How many triangles has she obtained?

Q10.

Five friends have their gardens next to one another, where they grow three kinds of crops: fruits (apple, pear, nut, cherry), vegetables (carrot, parsley, gourd, onion) and flowers (aster, rose, tulip, lily).

1. The 12 different varieties are indeed cultivated. 2. Everybody grows exactly 4 different varieties. 3. Each variety is at least in one garden. 4. Only one variety is in 4 gardens. 5. Only in one garden are all 3 kinds of crops. 6. Only in one garden are all 4 varieties of one kind of crops. 7. Pear is only in the two border gardens. 8. Paul's garden is in the middle with no lily. 9. Aster grower doesn't grow vegetables. 10. Rose growers don't grow parsley. 11. Nuts grower has also gourd and parsley. 12. In the first garden are apples and cherries. 13. Only in two gardens are cherries. 14. Sam has onions and cherries. 15. Luke grows exactly two kinds of fruit. 16. Tulip is only in two gardens. 17. Apple is in a single garden. 18. Only in one garden next to Zick's is parsley. 19. Sam's garden is not on the border. 20. Hank grows neither vegetables nor asters. 21. Paul has exactly three kinds of vegetable.

Who has which garden and what is grown where?