

***KIIRA COLLEGE BUTIKI***

***MATHEMATICS CLUB***

***MATHLETICS CONTEST 2019***

***Senior Mathletes Category***

***SECTION A (****5* ***marks each)***

***Qn. 1.*** If what is the greatest value of?

***Qn. 2.*** For each positive integer , the mean of the first terms of a sequence is . What is   
 the term of the sequence?

***Qn. 3.*** A function is defined for all real numbers and for all .   
 Find the value of .......

***Qn. 4.*** You are provided with a draughts board, how many squares of any size are on

the board?

***Qn. 5.*** The addition shown below is in a certain base and each of the letters and   
 represents a different digit. Find the values of and as wells as this base.

***Qn. 6.*** Without using a calculator, find the value of:

***Qn. 7.*** If two real non-positive numbers andsatisfy

and what is ?

***Qn. 8.*** A unique line has its slope equal to its y-intercept. Find that particular point  
 through which is guaranteed to pass.

***Qn. 9.*** Suppose two real positive numbers and satisfy

What is ?

***Qn. 10.*** For real and

What is ?

***SECTION B (****10* ***marks each)***

***Qn. 11.*** Determine all pairs of real numbers and that satisfy the simultaneous  
 equations below:

***Qn. 12.*** An exponential function is such that . What is the value of  
 ?

***Qn. 13.*** The letters in MATHLETICS and CONTEST are cycled up separately as  
 shown. The next correct spelling of both words will appear in row number .  
 find the value of .

1 MATHLETICS CONTEST

2 ATHLETICSM ONTESTC

3 THLETICSMA NTESTCO

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n MATHLETICS CONTEST

***Qn. 14.*** A parking lot has spaces in a row. Yesterday, twelve cars arrived each of  
 which required one parking space, and their drivers chose the spaces at  
 random from among the available spaces. Uncle Ismail then arrived in his  
 Katrina Toyota, which required two adjacent spaces. What is the probability  
 that he was able to park?

***Qn. 15.*** A census taker approached Mrs. Em in the morning and asked her about  
 her children. Mrs. Em said “I have three children, each aged above year  
 and the product of their ages is . The sum of their ages is the number on  
 the door.” The census taker did some calculations and found the given  
 information insufficient. However, Mrs. Em hurried off into the house saying  
 she had to see her youngest child with measles in bed. At this, the census  
 taker departed satisfied. Find the ages of Mrs. Em’s children.