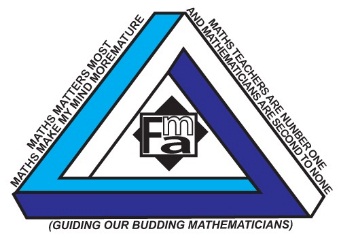
FIJI MATHEMATICS

ASSOCIATION

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**Fiji mathematics competition**

**(fmc)**

**YEAR 13**

**Thursday 23rd July 2015**

Time Allowed: 1 Hour 15 minutes

**Note:**

**Calculators are NOT permitted.**

**Diagrams are NOT drawn to scale.**

**Instructions:**

1. Print your **Name, School Name** and **Year** clearly in the space provided on the answer sheet.
2. Shade the circle corresponding to your answer with pencil on the answer sheet provided.
3. Multiple answers **will not be** accepted.



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1. Work out 2200 x 1.2

A. 264 B. 26.4 C. 2640 D. 26400 E. 0.264

2. If then equals

A. -3 B. 3 C. D. E.

1. The polar form of is
2. - B. C.

D. E.

4. The volume of a sphere is given by . What is the rate of change of of the volume with respect to the radius of the sphere when the radius is 5 units?

1. B. C. D. E.

5. What is the amplitude of the graph ?

A. B. C. D. E.

6. If find

A. 5 B.25 C.125 D. 81 E. 9

7. When simplified equals

A. B. C. D. E.

8. If, the value of is:

A. 5 B. 24 C. 25 D. 26 E.27

9. The simplified form of the expression is:

A. B. C. 5 D. E.

10. If James can paint a wall in 1 hours and Sachin can paint the same wall in 2 hours, how many minutes will it take for them to paint the same wall together.

A. 25 B. 30 C. 35 D. 40 E. 45

11. When the number is written as a numeral, the number of digits written is

A. 2015 B. 6045 C. 6046 D. 2018 E. 2019

12. Alex runs up a mountain road at 8 km per hour. It takes him one hour to get to the top. He runs down the same road at 12 km per hour. How many minutes does it take him to run down the mountain?

A. 30 B. 40 C. 45 D. 50 E. 90

13. Consider all the integers from 1 to 100 inclusively. What is the difference between the sum of all the even numbers and the sum of all the odd numbers?

A. 0 B. 25 C. 50 D. 100 E. 200

14. Two brothers together catch 60 crabs. If Raju catches three crabs for two Ramu catches, how many crabs does Ramu catch?

A. 20 B.24 C. 30 D. 36 E. 40

15. If and are positive numbers such that and, then the value of is

1. B. C. D. E.

16. If ,then equals:

A.  B.  C.  D.  E. 

17. Given and, the composite function is equal to

A. B. C.

D. E.

18. The value of is:

1. undefined B. 0 C. D. E. 9

19. The range of the function is

A. B. C.

D. E.

20. The exact value of is:

A. B. C. D. E.

21. let . Then is:

1. B. C. D. E.

22. The probability that Claudette will pass Mathematics is 0.54 and the probability that she will pass English is 0.68.The probability that she will pass both is 0.25. What is the probability that Claudette will neither pass Mathematics nor English?

A. 0.03 B.0.29 C.0.43 D.0.68 E. 0.97

23. The values of and in the expression respectively are:

A. 2 and 1 B. -2 and 1 C. -2 and -1

D. 2 and -1 E. 3 and -1

24. Rainbows End park charges $25.00 for adults and $15.00 for children under 12 years of age. A group of people pays $375.00 together. How many adults and how many children respectively, were there?

A. 11, 10 B. 15, 6 C. 10, 11 D. 6, 15 E. 5, 16

25. Four circles of radius 1cm are drawn with their centres at the four vertices of a square with side length 1cm. The area, in square centimetres, of the region overlapped by four circles is:

1. B. C.

D. E.

26. The side lengths of a right –angled triangle are in geometric progression and the shortest side has length 2. What is the length of the hypotenuse?

A. B. C. D. E.

27. A box contains 6 green and 3 red balls. The probability that the first 2 ball taken at random from the box will be the same colour is

A. B. C. D. E.

28. How many whole numbers less than 144 have exactly three factors?

A. 3 B. 4 C. 5 D. 6 E.

29. If then equals

A. 5 B.25 C.42 D.67 E. 81

30. The number of digits in the answer to the product is:

1. 24 B. 25 C. 26 D. 27 E. 28