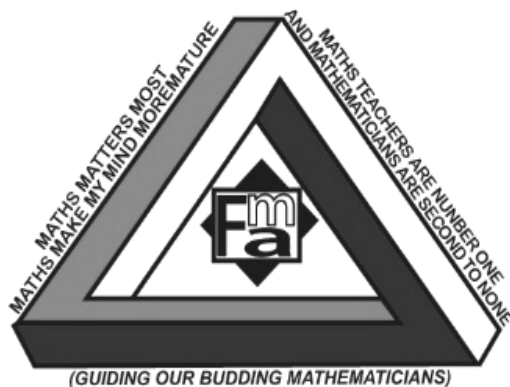


# **FIJI MATHEMATICS ASSOCIATION**



## **FIJI MATHEMATICS COMPETITION (FMC) YEAR 10**

**Thursday 6<sup>th</sup> September 2018**

**Time Allowed: 1 Hour 15 minutes**

**Note:**

**Calculators are NOT permitted.**

**Diagrams are NOT drawn to scale.**

**Instructions:**

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

## Year 10

1. Evaluate:  $2 + 3 \times 4 - 1$

- A. 19                      B. 23                      C. 13                      D. 11                      E. 15

2. An athlete needs to drink 500 ml of liquid for every kilometre he or she runs. If 5 athletes run 10 kilometres, how many litres of liquid will they consume?

- A. 5                      B. 50                      C. 20                      D. 40                      E. 25

3. If  $a = \frac{1}{2}$ ,  $b = -3$  and  $c = \frac{3}{4}$ , the value of  $\frac{a.b}{c}$  is

- A.  $-\frac{10}{3}$                       B.  $\frac{9}{8}$                       C.  $-\frac{2}{3}$                       D. -2                      E. 2

4. Evaluate  $2^3 \times 3^2$

- A. 36                      B. 72                      C. 54                      D. 56                      E. 30

5. The median of the following data is: **{7, 5, 11, 6, 7, 3}**

- A. 3                      B. 6                      C. 6.5                      D. 7                      E. 11

6. Evaluate  $10p - 15q - 5(2p - 3q)$

- A.  $20p - 30q$                       B.  $-20p - 30q$                       C.  $20p$                       D.  $-30q$                       E. 0

7. Five out of six whole numbers are 22, 18, 13, 22 and 20.

If the mean is 18, then the sixth number is

- A. 7                      B. 13                      C. 18                      D. 22                      E. 20

8.  $3^{2x} \times 3^{-2(x+1)}$  when simplified is equal to

- A.  $3^{2x-2}$                       B.  $3^{2x+2}$                       C.  $3^{-x^2-2x}$                       D. 9                      E.  $\frac{1}{9}$

9. If  $\frac{2+3x}{3} > 2x-1$  then

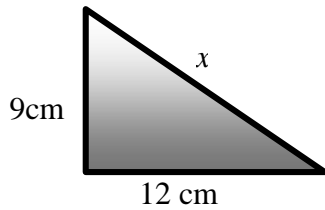
- A.  $x < \frac{5}{3}$                       B.  $x < \frac{-5}{3}$                       C.  $x < \frac{3}{5}$                       D.  $x > \frac{13}{5}$                       E.  $x > \frac{7}{3}$

10. The Computer Store has reduced the price of a computer by 15%. What is the original price of the computer if the sale price is \$1275?

- A. \$1200                      B. \$800                      C. \$1500                      D. \$1450                      E. \$1300

## Year 10

11. What is the length of the side marked  $x$ ?



- A. 225
- B. 15
- C. 13
- D. 25
- E. 16

12. The volume of a cube is  $27\text{cm}^3$ . What is its total surface area?

- A.  $3\text{cm}^2$
- B.  $9\text{cm}^2$
- C.  $27\text{cm}^2$
- D.  $54\text{cm}^2$
- E.  $81\text{cm}^2$

13. Solve for  $x$  in the equation  $\frac{x-3}{4} = \frac{x}{3} + 1$

- A. -21
- B. 21
- C. 3
- D. -3
- E. 6

14. 6 men painted a house in 4 days. How many days will 5 men take to paint the same house?

- A. 3.0
- B. 4.5
- C. 5.2
- D. 4.8
- E. 5.5

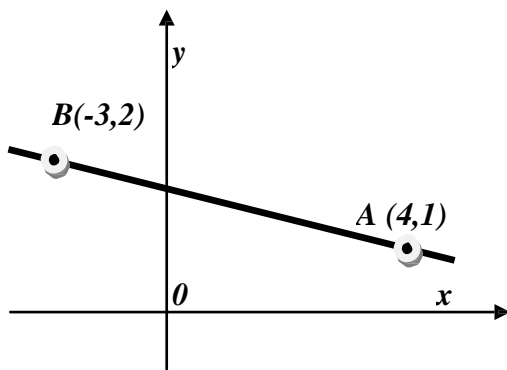
15. What is the equation of the line passing through the points  $(a, 2b)$  and  $(a, 3b)$ ?

- A.  $x = a$
- B.  $y = a$
- C.  $y = x - b$
- D.  $y = x + b$
- E.  $y = x + a$

16. Simplify  $\frac{a^n \times a^{n+2}}{a^5}$

- A.  $a^{n+3}$
- B.  $a^{2n+3}$
- C.  $a^{2n+2}$
- D.  $a^{n-3}$
- E.  $a^{2n-3}$

- 17.



Determine the slope of line AB

- A.  $\frac{2}{7}$
- B.  $\frac{1}{7}$
- C. -7
- D. 7
- E.  $-\frac{1}{7}$

18. A handyman who is paid \$2.50 an hour, worked for 28 hours normal, and 5 hours double time in a week. His income for the week will be

- A. \$70
- B. \$82.50
- C. \$90
- D. \$95
- E. \$100

19.  $5x^0 + 7x^0 - 3m^0$  is equal to

- A.  $12 - 3m$
- B.  $12x - 3m$
- C. 9
- D.  $9x$
- E. 12

## Year 10

20. The lengths of the sides of a triangle are  $3x$ ,  $4x$ , and  $5x$ . What is the length of the longest side if the perimeter of the triangle is 72 cm?
- A. 6 cm                      B. 18 cm                      C. 24 cm                      D. 30 cm                      E. 32 cm
21.  $|11-13|-|4-12|$  is equal to
- A. 6                      B. -10                      C. -6                      D. 10                      E. -18
22. Anjelin spent \$42 for a pair of shoes. This was \$14 more than the amount she spent for a dress. She also bought a handbag which was half the price of the price of the shoes. What was the total amount she spent?
- A. \$90                      B. \$105                      C. \$91                      D. \$100                      E. \$84
23. In the simplest form,  $-4x + 2(4x + 5) - 10x$  is equal to
- A.  $-2x + 22$                       B.  $-12x + 10$                       C.  $-6x + 10$                       D.  $-12x - 10$                       E.  $-4x + 4$
24. Five positive integers have a mean of 10, a median of 10 and only one mode, which is 12. What is the difference between the largest and the smallest of these numbers?
- A. 3                      B. 5                      C. 6                      D. 7                      E. 8
25. Out of the 80 students in class, 25 are playing soccer, 15 playing rugby and 13 playing netball. 3 are playing soccer and rugby; 4 are playing rugby and netball; 2 are playing soccer and netball; and none are playing all 3 sports at the same time. How many students are not playing any of the three sports?
- A. 7                      B. 18                      C. 53                      D. 62                      E. 36
26. A farmer packed 52 boxes of mangoes each with the same number of mangoes in it and had 8 mangos left over. If he had packed 2 less mangos in each box, he would have filled 60 boxes. How many mangoes did he have?
- A. 540                      B. 480                      C. 840                      D. 720                      E. 900
27. If  $3^k = 9^{30}$  then  $k$  equals:
- A. 15                      B. 30                      C. 40                      D. 60                      E. 90
28. Shane 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
29. The next term in the sequence  $\langle 3, 8, 23, 68, 203, \dots \rangle$  is:
- A. 608                      B. 812                      C. 609                      D. 612                      E. 271
30. 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