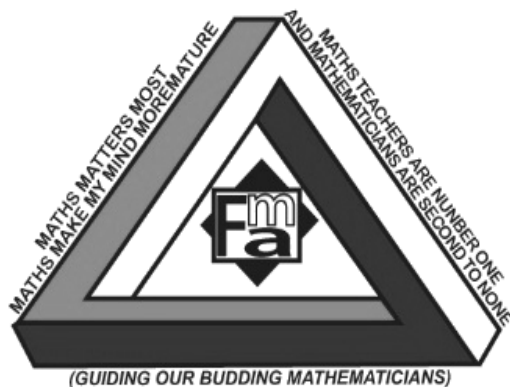


# FIJI MATHEMATICS ASSOCIATION



## FIJI MATHEMATICS COMPETITION (FMC) YEAR 9

**Wednesday 6<sup>th</sup> September 2017**

**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

1.  $\mathbf{b + c = c + b}$  illustrates which property?

- A. Commutative      B. Distributive      C. Associative  
D. Identity      E. additive

2.  $6 \div 2(1 + 2)$  is equal to

- A. 1      B. 9      C. 6      D. 3      E. 0

3. If  $a = 3$ ,  $b = -1$ ,  $c = 6$ , find the value of  $ac - b^2 + 2ab$

- A. 25      B. 18      C. 13      D. 11      E. 22

4. The ordered pair (0,3) lies on

- A. x -axis      B. y - axis      C. origin      D.  $x = 3$       E.  $y = 0$

5. The line that is parallel to the y - axis and passes through the point (-2,1) is :

- A.  $x = -2$       B.  $x = 1$       C.  $y = 1$       D.  $x = 0$       E.  $y = 0$

6. Evaluate  $2^3 - 4 \times (7 - 10)$

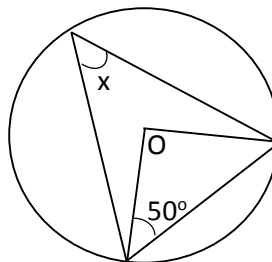
- A. 20      B. -12      C. -4      D. 10      E. 12

7. A rectangle has length =  $x$  and width =  $x - 2$ . Which of the following is the expression for the perimeter of the rectangle.

- A.  $x^2 - 4$       B.  $x^2 + 2$       C.  $2x + 4$       D.  $4x - 4$       E.  $4x + 4$

8. Given that the angle at the centre is twice the angle at the circumference, the value of  $x$  in a circle with centre O is

- A.  $25^\circ$   
B.  $40^\circ$   
C.  $50^\circ$   
D.  $60^\circ$   
E.  $80^\circ$



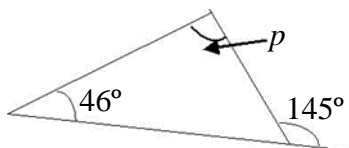
9. Simplify  $4y - x + y - 3x$

- A.  $7xy$       B.  $5y + 4x$       C.  $5y + 4$       D.  $5y - 4x$       E.  $4x - 5y$

10. One of the factors of  $3x^2 - 6x$  is

- A.  $3x - 2$       B.  $x - 2$       C.  $3x^2$       D.  $3x + 2$       E.  $x + 2$

11. 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
12. When expressed as percentage, 0.67 is equal to
- A. 6.7 %                      B. 100 %                      C. 670 %                      D. 67 %                      E. 0.067 %
13. A packet of 1 litre milk is bought for \$2.50 and sold for 20% less. How much would one pay for 45 packets of milk?
- A. \$45                      B. \$60                      C. \$70                      D. \$ 80                      E. \$90
14. Which of the following will change under reflection?
- A. size                      B. orientation                      C. angles                      D. shape                      E. area
15. What is the name given to a ten – sided figure?
- A. nonagon                      B. octagon                      C. decagon                      D. dodecagon                      E. heptagon
16.  $\frac{54m^5n^6}{6m^3n^2}$  in simplified form is
- A.  $9m^8n^8$                       B.  $9m^6n^6$                       C.  $12m^2n$                       D.  $9m^2n^4$                       E.  $12mn$
17. The ratio of boys to girls in a Year 9 is 4:5. If there are 45 students in the class, how many boys are there?
- A. 20                      B. 35                      C. 25                      D. 30                      E. 15
18. Simplify  $(-2n^3)^2$
- A.  $-2n^6$                       B.  $2n^5$                       C.  $4n^6$                       D.  $-4n^6$                       E.  $4n^5$
19. Which of the following expressions is difference of two squares?
- A.  $x - 9$                       B.  $x^2 - 9$                       C.  $x^2 + 9$                       D.  $x + 9$                       E.  $x^2 - 9x$
20. Find the size of the angle marked  $p$ .



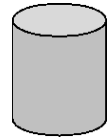
- A.  $90^\circ$                       B.  $98^\circ$                       C.  $100^\circ$                       D.  $99^\circ$                       E.  $96^\circ$

## Year 9

21. Which of the following is correct?

- A.  $(a - b)^2 = a^2 - b^2$
- B.  $(a - b)^2 = a^2 + b^2$
- C.  $(a - b)^2 = a^2 - 2ab - b^2$
- D.  $(a - b)^2 = a^2 - b^2 + 2ab$
- E.  $(a - b)^2 = a^2 - 2ab + b^2$

22. Find the volume of the cylinder shown if the diameter is 4 cm and the height is 7 cm. (Use  $\pi = \frac{22}{7}$ )



- A.  $154 \text{ cm}^3$
- B.  $44 \text{ cm}^3$
- C.  $88 \text{ cm}^3$
- D.  $616 \text{ cm}^3$
- E.  $14 \text{ cm}^3$

23. Which of the following numbers is irrational?

- A. -1
- B. 1
- C.  $\frac{2}{3}$
- D.  $\sqrt{2}$
- E.  $\frac{7}{8}$

24. Evaluate  $|-5 + 2| - |3 - 6|$

- A. 0
- B. -3
- C. 3
- D. -6
- E. 6

25. Which of the following is the smallest fraction?

- A.  $\frac{3}{7}$
- B.  $\frac{5}{6}$
- C.  $\frac{2}{5}$
- D.  $\frac{5}{13}$
- E.  $\frac{2}{9}$

26. Solve for x in  $\frac{x+4}{x-3} = 0$

- A. -4
- B. -3
- C. 0
- D. 3
- E. 4

27. The mean of 12 score is 5. A 13<sup>th</sup> score of 18 is added. What is the new mean?

- A. 12.5
- B. 12
- C. 6
- D. 5
- E. 7

28. Simplify the expression  $\sqrt{\frac{81}{121}}$

- A.  $\frac{9}{13}$
- B.  $\frac{9}{11}$
- C.  $\frac{11}{9}$
- D.  $\frac{13}{9}$
- E.  $\frac{3}{4}$

29. Which of the following is incorrect?

- A.  $-7 < 0$
- B.  $2 > -3$
- C.  $|-2| = |2|$
- D.  $|-2 + 3| > 5$
- E.  $0 > -7$

30. Solve for x in the equation

$$\frac{x-3}{4} = \frac{x}{3} + 1$$

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