

FIJI MATHEMATICS ASSOCIATION



FIJI MATHEMATICS COMPETITION (FMC) YEAR 10

Thursday 1st September 2016

Time Allowed: 1 Hour 15 minutes


Note:

Calculators are NOT permitted.

Diagrams are NOT drawn to scale.

Instructions:

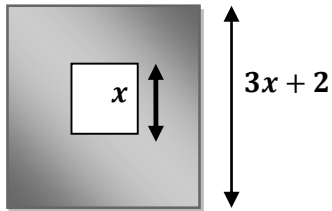
1. Print your **Name** in the space provided and Shade the circle corresponding to your **Year** on the answer sheet.
2. Shade the circle corresponding to your answer with dark pencil on the answer sheet provided.
3. Multiple answers **will not be** accepted.

1. $2015 - 20.15$ equals
 A. 1984.85 B. 1995.15 C. 1994.85 D. 1995.85 E. 2035.15
2. Which of the following is an irrational number?
 A. $\sqrt{5}$ B. $-\frac{1}{2}$ C. 2 D. $\sqrt{36}$ E. 0.1
3. 0.0052 in standard form is
 A. 52×10^{-4} B. 5.2×10^{-4} C. 5.2×10^{-3} D. 52×10^4 E. 5.2×10^4
4. If $p = 11$ and $q = -4$, then $p^2 - q^2$ equals
 A. 105 B. 137 C. 117 D. 115 E. 94
5. Evaluate $6 + 30 \div 6 - 3$
 A. 3 B. 16 C. 6 D. 8 E. 3
6. The gradient of the line passing through the points $(-2, 1)$ and $(0, 0)$ is
 A. $\frac{1}{2}$ B. -2 C. 0 D. 1 E. $-\frac{1}{2}$
7. Which of the following inequalities is represented by the graph below?

 A. $\{x: -3 < x < 2, x \in R\}$ B. $\{x: -3 \leq x < 2, x \in R\}$
 C. $\{x: -3 \leq x \leq 2, x \in R\}$ D. $\{x: -3 \leq x < 2, x \in I\}$
 E. $\{x: -3 < x \leq 2, x \in I\}$
8. $7x^2 + 6 - 5x - 3 + 2x^2 - x$ when simplified is:
 A. $9x^2 - 3 - 6x$ B. $9x^2 + 3 + 6x$
 C. $9x^2 + 6x - 3$ D. $9x^2 - 6x + 3$ E. $9x^2 - 6x - 3$
9. A movie lasts for $2\frac{1}{3}$ hours. The movie is shown in two equal sessions. For how many minutes does each session last?
 A. 85 B. 70 C. 80 D. 65 E. 75
10. The value for x in $4^x = 256$ is
 A. 7 B. 6 C. 5 D. 4 E. 3
11. The sum of $\frac{x}{4} + \frac{2x}{4} + \frac{3x}{4}$ in simplified form is
 A. $\frac{6x}{12}$ B. $\frac{x}{2}$ C. $\frac{3x^3}{2}$ D. $\frac{6x}{4}$ E. $\frac{3x}{2}$

12. What is the value of 2015 twenty – cent coins?

- A. \$2015 B. \$107.50 C. \$17.50 D. \$403 E. \$43

13. A square garden has a square goldfish pond in the centre.



The area of the shaded region in terms of x is:

- A. $8x^2 + 12x + 4$ B. $9x^2 + 12x + 4$ C. $5x^2 + 12x + 4$
D. $6x^2 + 12x + 4$ E. $8x^2 + 36x + 4$

14. On a farm the ratio of horses to cows is 3:2 and the ratio of cows to goats is 4:3. The ratio of goats to horses is

- A. 5:7 B. 3:8 C. 3:5 D. 5:18 E. 1:2

15. $\frac{x-8}{x^2-64}$ when simplified is

- A. $x + 8$ B. $\frac{1}{x+8}$ C. $\frac{1}{x-8}$ D. $x - 8$ E. $\frac{x}{8}$

16. The lengths of the sides of a triangle are $3x$, $4x$ and $5x$. What is the length of the smallest side if the perimeter of the triangle is 72 cm.

- A. 15 cm B. 18 cm C. 24 cm D. 30 cm E. 32 cm

17. A packet of lollies contains 5 blue lollies, 15 yellow lollies and some red lollies. One-third of the lollies are red. What fraction of lollies are yellow?

- A. $\frac{1}{3}$ B. $\frac{5}{6}$ C. $\frac{1}{2}$ D. $\frac{1}{6}$ E. $\frac{2}{3}$

18. Written in base index form, the expression $\log_5 125 = 3$ is:

- A. $5^3 = 125$ B. $3^5 = 125$ C. $125^{\frac{1}{5}} = 3$ D. $125^3 = 5$ E. $125^5 = 3$

19. A 10 metre ladder leans against a wall. It reaches a height of 6m. How far is the ladder placed from the base of the wall?

- A. 16m B. 10m C. 64 m D. 8m E. 136m

20. $x - (x - y)$ is

- A. $x^2 - xy$ B. $2x - y$ C. $x - xy$ D. y E. $-y$

21. The decimal 0.24 is equal to
 A. 24% B. 240% C. 2.4% D. 0.24% E. 0.024%
22. The mean of 5 quiz scores is 7. What must the 6th score be to raise the average of all the scores to 7.5?
 A. 0.5 B. 7.5 C. 8 D. 9 E. 10
23. The reciprocal of $-2\frac{3}{5}$ is:
 A. $\frac{-13}{5}$ B. $\frac{13}{5}$ C. $\frac{-5}{13}$ D. $\frac{5}{13}$ E. $\frac{-10}{5}$
24. Tui the window washer starts on the 38th floor of a building that has 12 windows per floor. He washes all of the windows on each floor before moving down to the floor below. Which floor is Tui on after he has washed 141 windows?
 A. 25th B. 24th C. 28th D. 27th E. 26th
25. 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
26. The sum of the interior angles of a polygon of n sides is given by $A = (n - 2) \times 180$.
 If $A = 1080$, then the polygon is
 A. Pentagon B. Heptagon C. Octagon D. Decagon E. Quadrilateral
27. A bag contains 3 red marbles, 5 blue marbles and 7 green marbles. The probability that a marble selected at random is not blue in colour is:
 A. $\frac{1}{5}$ B. $\frac{7}{15}$ C. $\frac{2}{3}$ D. $\frac{1}{3}$ E. $\frac{1}{3}$
28. If $U = 2\frac{1}{2}$; $V = 3\frac{3}{4}$ and $W = \frac{3}{2}$ then, the value of $\frac{UV}{W}$ will be equal to
 A. $4\frac{1}{2}$ B. $6\frac{1}{4}$ C. $5\frac{1}{4}$ D. $\frac{5}{8}$ E. 6
29. There are 7 dwarfs. The dwarfs are born in 7 consecutive years. If the last 3 dwarfs age add to give 42 years, what is the sum of the ages of the other 4 dwarfs?
 A. 42 years B. 54 years C. 60 years D. 70 years E. 30 years
30. Jeena measures three sides of a rectangle and gets a total of 80 cm. Dylan measures three sides of the same rectangle and gets a total of 88 cm. What is the perimeter of the rectangle?
 A. 112 cm B. 132 cm C. 96 cm D. 168 cm E. 156 cm