AFRICAN MATHEMATICS OLYMPIAD

...Inspiring African Champions

Primary Category

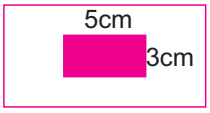
INSTRUCTION: Attempt all questions

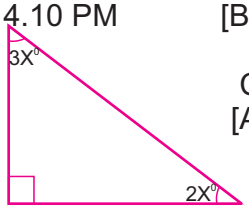
DURATION: 1 (ONE) HOUR

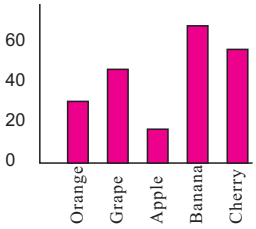
2023 Mock Examination

SECTION A

INSTRUCTION: ATTEMPT ALL QUESTIONS (EACH QUESTION CARRIES ONE MARK)

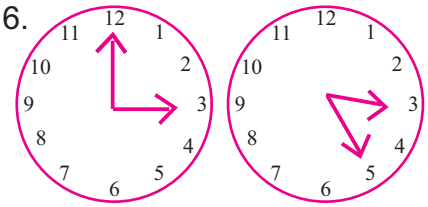
1. The average speed of a school bus traveling in the last two hours is 18km/h, calculate the distance it has covered in the last half hour.
   [A] 36km [B] 9km [C] 4.5km [D] 30km [E] None of the above
2. A teacher invested the sum of ₦10,000 in an investment scheme and received ₦25,000 at the end of the period of the investment, at what rate was interest given?
   [A] 50% [B] 250% [C] 150% [D] 15% [E] None of the above
3. 

Calculate the area of the rectangle if the area of the unshaded region is $32cm^2$.
[A] $17cm^2$ [B] $47cm^2$ [C] $15cm^2$ [D] $24cm^2$ [E] None of the above
4. Correct 600187 to two significant figures.
   [A] 600000 [B] 60 [C] 610000 [D] 600187 [E] None of the above
5. The second quarter of the year is made up of how many days?
   [A] 120 days [B] 121 days [C] 92 days [D] 91 days [E] None of the above
6. Which of the following is a perfect square?
   [A] 121 [B] 252 [C] 89 [D] 168 [E] None of the above
7. An Air Peace Boeing 777 aircraft arrived Tokyo international airport at exactly 9.25AM after flying for nineteen hours fifteen minutes from Nigeria, What was the departure time of the aircraft?
   [A] 4.10 PM [B] 4.40 PM [C] 4.40 AM [D] 4.10 AM [E] None of the above
8. 

Calculate the value of x in the triangle
[A] 90^0 [B] 54^0 [C] 18^0 [D] 36^0 [E] None of the above
9. The sum of the ages of a set of quadruplet writing Royal Maths Olympiad Exam is 45 years and 4 months, what is the age of each pupil?
   [A] 11 years 3 months [B] 11 years 2 months [C] 11 years 1 month [D] 11years 4 months [E] None
10. A pupil bought 25x books, if she was gifted additional 10x books and now has a total of 70 books, find the value of x. [A] 5 [B] 3 [C] 4 [D] 2 [E] None of the above
11. The three angles of a triangle are 2y, 3y and 4y, Identify the nature of the triangle.
    [A] scalene triangle [B] isosceles triangle [C] right angled triangle [D] equilateral triangle [E] None
12. Find the square root of 2¼
    [A] ⅔ [B] 1½ [C] 1¾ [D] 1¼ [E] None of the above
13. 

The least favourite fruit consumed in the diagram is –
[A] Orange [B] grape [C] Apple [D] banana [E] cherry
14. Calculate the simple interest on a loan of ₦6,000 borrowed for 2¼ years at the rate of 10% interest per annum. [A] ₦1,950 [B] ₦600 [C] ₦1,350 [D] ₦1,200 [E] None of the above.

15. If three-quarter of a number is 30, what is one-fifth of the same number?
[A] 8 [B] 9 [C] 40 [D] 6 [E] None of the above

16. 

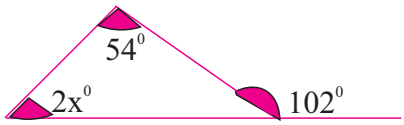
The time is exactly 3.00pm, what angle has the minute hand formed when it is 3.25pm?

[A] 150^0 [B] 180^0 [C] 90^0 [D] 120^0 [E] None of the above

17. A federal worker spends 12% of his monthly income on transportation, how much is his monthly income if total spending on transportation for two months amounted to ₦24,000?
[A] ₦288,000 [B] ₦120,000 [C] ₦200,000 [D] ₦100,000 [E] None of the above

18. The scores of five students in a quiz are 12, 9, 18, 11 and 15. Calculate the mean score.
[A]15 [B]13 [C] 11 [D] 65 [E] None of the above

19. Rearrange in descending order: 0.18, 0.3, -1.4, -½ and ⅓ [A]⅓, 0.3, 0.18, -½ and -1.4
[B] -1.4, -½, 0.18, 0.3, and ⅓ [C] 0.3, ⅓, 0.18, -½ and -1.4 [D] ⅓, 0.18, 0.3, -½ and -1.4 [E] None

20. 

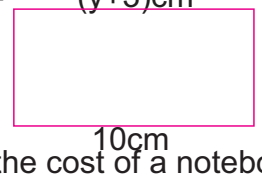
Find the value of x in the diagram.
[A] 78^0 [B]126^0 [C] 48^0 [D] 24^0 [E] None of the above

21. Obi, Bola and Bala shared some mangoes in the ratio of 5:3:2 respectively. How many did Bola get if they shared 60 mangoes?
[A] 30 mangoes [B] 20 mangoes [C] 18 mangoes [D] 12 mangoes [E] None of the above

22. Express in figure four hundred and four million, eighteen thousand and two.
[A] 404,180,002 [B] 404,001,802 [C] 404,018,002 [D] 444,180,002 [E] None of the above

23. Find the LCM of 5, 6 and 8.
[A] 60 [B] 120 [C] 78 [D] 240 [E] None of the above

24. A trader bought 5 dozens of eggs for ₦500. How much profit will she make after selling 3 dozens if an egg is sold for ₦10?
[A] ₦20 [B] ₦120 [C] ₦60 [D] ₦100 [E] None of the above

25 

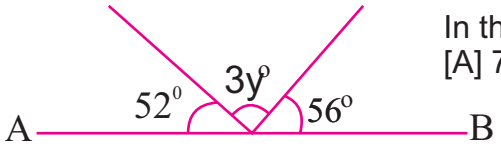
Find the area of the rectangle
[A] $70cm^2$ [B]$100cm^2$ [C] $130cm^2$ [D] $34cm^2$ [E] None of the above

26. If the cost of a notebook is x-20 and the cost of a pen is 2x+5, how much will a note book and two pens cost? [A] 5x-10 [B] 5x+10 [C] 3x+30 [D] 5x-15 [E] None of the above

27. If -12 is added to twice a given number, the result is 24, fine the number.
[A] 36 [B] 12 [C] 18 [D] 6 [E] None of the above

28. A painter completed a job in 30 days while working for 5 hours daily. How long will it take him to complete the same task if he was working for 15 hours daily?
[A] 12 days [B] 10 days [C] 20 days [D] 25 days [E] None of the above

29. Preye failed his class test by scoring 15% of the total marks awarded. If Ade got 65% and scored 195 marks, what did Preye score?
[A] 35 marks [B] 45 marks [C] 30 marks [D] 25 marks [E] None of the above

30. 

In the diagram, AB is a straight line, find the value of y^0
[A] 72^0 [B] 18^0 [C] 24^0 [D] 30^0 [E] None

31. Find the H.C.F of 10, 15 and 25 [A] 30 [B]150 [C] 25 [D] 5 [E] None of the above

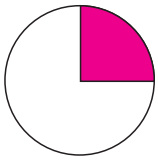
32. What must be added to 6 and 1⅓ to make 12⅔?
[A] 5⅓ [B] 5½ [C] 5⅔ [D] 4⅚ [E] None of the above

33. Evaluate $\frac{2x + y}{2x - 2y}$ where x = -1 and y = 4.
[A] ⅑ [B] -⅕ [C] 5 [D] ⅕ [E] None of the above

34. What is the value of P in the sequence: 3, 11, 27, 59, p, 251
[A] 123 [B] 91 [C] 160 [D] 184 [E] None of the above

35. What percentage of 3kg is 60g? [A] 20% [B] 5% [C] 10% [D] 2% [E] None of the above

36. MCXXI - CLX + DCXIX
[A] MDLXXX [B] MCDLXXX [C] MDCLXXX [D] MDLXX [E] None of the above

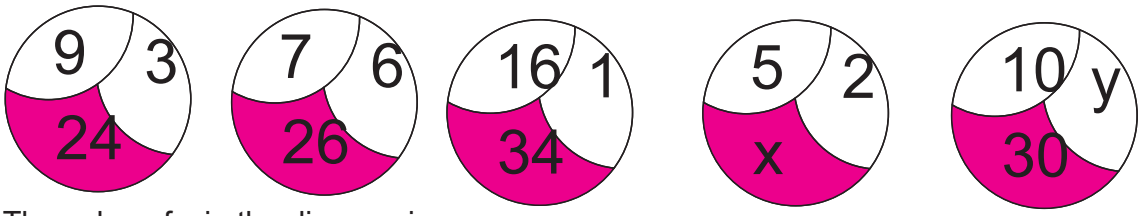
37. 

The shaded region of the diagram is called ...
[A] semi-circle [B] radius [C] sector [D] circumference [E] None of the above

38. What is the place value of 6 in 9574.326?
[A] unit [B] hundredth [C] thousandth [D] tenth [E] None of the above

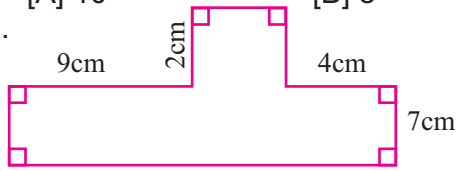
39. Calculate the area of a circle with a diameter of 14cm.
[A] $44cm^2$ [B] $208cm^2$ [C] $88cm^2$ [D] $154cm^2$ [E] None of the above

STUDY THE DIAGRAM CAREFULLY AND ANSWER QUESTION 40 AND 41



40. The value of x in the diagram is .....
[A] 24 [B] 20 [C] 12 [D] 14 [E] None of the above

41. The value of y in the diagram is .....
[A] 10 [B] 8 [C] 5 [D] 6 [E] None of the above

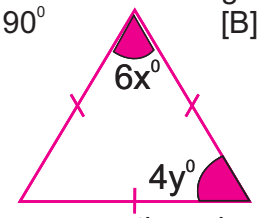
42. 

Calculate the perimeter of the figure
[A] 52cm [B] 54cm [C] 48cm [D] 60cm [E] None

43. Find the amount Mr Okeke will pay back to First bank Limited after borrowing ₦24,000 for three and the half yeas at an agreed interest rate of 5% per annum.
[A] ₦28,200 [B] ₦27,600 [C] ₦3,600 [D] ₦4,200 [E] None of the above

44. Divide the sum of -6 and 3 by the product of ½ and 2.
[A] 3 [B] $-\frac{1}{3}$ [C] $-\frac{2}{3}$ [D] -3 [E] None of the above

45. Which of the following is an acute angle?
[A] 90^0 [B] 91^0 [C] 89^0 [D] 181^0 [E] None of the above

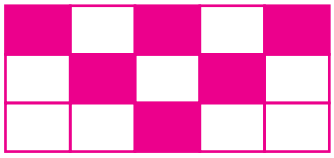
46. 

If $6x^0$ and $4y^0$ are angles in an equilateral triangle, find the sum of x^0 and y^0
[A] 120^0 [B] 60^0 [C] 25^0 [D] 5^0 [E] None of the above

47. How many vertices does a cube have?
[A] 6 [B] 8 [C] 12 [D] 4 [E] None of the above

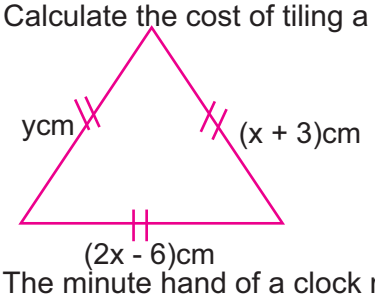
48. Find the value of (x - y) in the equivalent fraction $\frac{x}{24} = \frac{35}{60} = \frac{y}{12}$
[A] 7 [B] 14 [C] 5 [D] 21 [E] None of the above

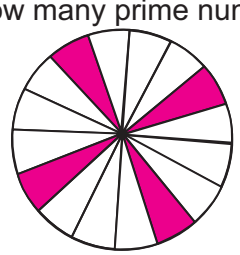
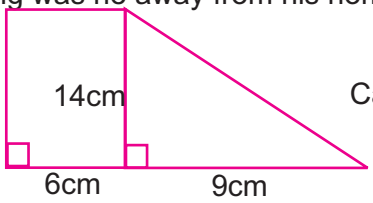
49. Emeka spent ⅓ of his income on games and ½ of the remainder on refreshment, how much does he have left for savings if he earns ₦12,000 monthly?
[A] ₦4,000 [B] ₦3,000 [C] ₦8,000 [D] ₦6000 [E] None of the above

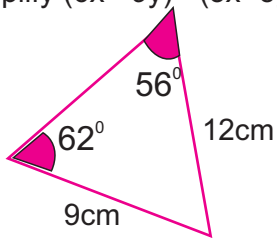
50. 

What fraction represents the shaded region of the rectangle?
[A] $\frac{6}{14}$ [B] $\frac{3}{5}$ [C] $\frac{7}{15}$ [D] $\frac{2}{5}$ [E] None of the above

SECTION B: ANSWER ALL QUESTIONS EACH QUESTION CARRIES TWO MARKS(50 MARKS)

51. Express 72 as a product of its prime factors.
52. Calculate the cost of tiling a 6m square room if the cost of tiling a 30cm square room is ₦2000.
53. 

Calculate the value of ycm in the triangle.
54. The minute hand of a clock rotates through an angle of 360^0 in how many hour(s)?
55. Find the product of 0.05 and 760.
56. Mrs. Okafor bought an article for ₦45,000, at what price must she sell to make a profit of 10%?
57. Find the sum of 0.018, 22.3, 432.04 and -½
58. How many even numbers are there between 2 and 200?
59. If 9 taps flowing at the same rate can fill a tank in 16 hours, how long will it take 24 taps to fill same tank?
60. Express ¼ as a decimal fraction.
61 How many loaves of bread weighing 16g can be baked from a dough that weighs 48kg?
62 How many prime numbers are there from 1 to 31?
63. 
If all sectors of the circle are equal in area, what percentage represents the shaded region?
64. Simplify $(1\frac{2}{3} + 2\frac{1}{2}) \div \frac{5}{6}$
65. Find the median weight of seven books arranged in a cabinet: 44g, 22g, 16g, 30g, 17g, 32g, and 9g.
66. What is the smallest number that can be divided by 9, 5 and 7?
67. Mr Tunde the mathematics teacher left his house for work at exactly 6.45AM and returned by 7.25PM, how long was he away from his home?
68. 

Calculate the area of the figure
69. A drum half full contains 150 litres of petrol, how many drums will be required to fill a tank with a capacity of 7,500 litres?
70. If a = 2, b = 0 and y = 3, find aby.
71. The area of a triangle is $48cm^2$, find the height of the triangle if the base is given as 6cm.
72. Simplify (6x - 9y) - (3x -5y)
73. 

find the perimeter of the triangle
74. Simplify 8 ÷ 2 - 1 x 3 + 4
75. Find the area of a square classroom with a length of 12m