SOUTH AFRICAN MATHEMATICAL LITERACY OLYMPIADS

E-mail : Info@saolympiads .co.za website: www.saolympiads .co.za

Mathematical Literacy Olympiad GRADE 11

DATE: 5-8 AUGUST 2024

TIME: 90 MINUTES

INSTRUCTIONS:

1. This booklet has 10 multiple choice and 10 open ended questions.
2. Use the answer sheet provided.

   Circle the letter corresponding to your answer.
3. All working details must be done in the space provided.
4. Calculators are permitted.
5. Diagrams are not necessarily drawn to scale.
6. The first 15 problems carry 1 mark each and the next 5 carry 2 marks each.
7. You have 90 minutes for the paper which works out to an average of 4.5 minutes per question.
8. Read the questions carefully before answering.
9. Visit the website: www.saolympiads.co.za.

ENJOY THE OLYMPIAD.

Non-profit Company
Registration No: 2015/050119/08

Grade Eleven Mathematical Literacy Olympiad 2024

1. Evaluate: 12 + 12 x $\frac{3}{4}$

   (A) 7 (B) 6 (C) 5 (D) 21

2. The maximum mass of a lift is 1000kg. The maximum number of persons that can use the lift is 12. What is the mean (average) mass of each person to the nearest kg.

   (A) 83 (B) 85 (C) 87 (D) 89

3. A truck load of sand is 6m^3. 249 m^3 of sand was to be removed from the site. How many loads are needed to remove all the sand?

   (A) 40 (B) 41 (C) 42 (D) 43

4. When $\frac{7}{12}$ is written as a repeating decimal fraction then write down the sum of the 30 digits after the decimal point.

   (A) 103 (B) 97 (C) 90 (D) 89

5. One needs 3.6 litres of water to cook 400 grams of macaroni. How much of water in litres would one need to cook 250 grams of macaroni?

   (A) 1.1 (B) 1.2 (C) 2.25 (D) 1.40

6. A group of waitrons earned service charges of 12% on sales if the takings for the day was R67 200 (including service charges) then determine the service charges shared by 4 waitrons.

   (A) R9000 (B) R 8064 (C) 7200 (D) R 6900

7. The price of petrol has decreased by 9% from R25 per litre. What was the new price per litre of petrol in rands?

   (A) 22.75 (B) 23.15 (C) 23.75 (D) 24.15

8. 0.4 litres of tint is used to tint 5 litres of paint. If 4.8 litres of tint were used, then determine how many litres of paint was tinted?

   (A) 52 (B) 56 (C) 60 (D) 64

9. 36 litres of diesel to get from Durban to Pretoria which is 600km from each other. Determine the rate as litres per 100km.

(A) 6 (B) 6.5 (C) 7 (D) 7.5

10. Three sheep needs to graze on a 4 metres by 4 metres square plot.
What is the maximum number of sheep that can graze on a farm 500 metres by 400 metres?

(A) 24 732 (B) 37 500 (C) 35 826 (D) 26 600

11. A company manufactures 15" laptops. The following is a breakdown of costs:
- Fixed cost (FC) = R1050 000
- Variable cost (VC) = R2400
- Selling price (SP) = R4500

Use the break- even point formula $\frac{FC}{SP-VR}$ to determine the break-even point.

12. It took Mrs Khumalo 15 minutes to drive 10 km from home to Mpho's school. Calculate Mrs Khumalo's average speed in km/h during the trip from home to Mpho's school.

13. A bag contains 5 blue blocks and 4 white blocks. A block is drawn at random and not replaced. A second block is drawn.
What is the probability of drawing 2 blue blocks?

14. 200 workers had to select at least one of two disciplines, namely Machining and Polishing:
- 120 selected Machining.
- 124 selected Polishing.

What is the probability that a worker selected at random would be doing Polishing and Machining?

15. There are 260 beads in a jar. There are 80 green beads and there are twice as many red beads as there are blue beads. What is the ratio of blue beads to red beads to green beads?

16. A Construction company charges R600 per day and a fixed charge of R5000 for hiring specialised equipment for construction work. Let the number of days be represented by n.
Determine the cost of hire in terms of n.

17. If an article costs R450 and the exchange rate is £1: R 24, how much will the article cost in pounds (£)?

18. Stanley has a car wash in Overport. The car wash washes on average 10 cars and 5 mini bus taxis per day from Monday to Friday. On a Saturday and Sunday, they wash 60% more cars and 30% more minibus taxis per day than the average Monday to Friday. Three 25 litre buckets are used to wash a car and four 25 litre buckets are used to wash a minibus taxi. How many litres of water does the car wash use in 7 days?

19. It takes 6 workers to paint a building in 5 days. How long will it take 2 workers working at the same rate to paint the building?

20. Volume and Capacity of Cuboids

Did you know? 1 cm^3 = 1 ml and 1000 ml = 1 litre

A rectangular tank with a rectangular base has a capacity of 216 kl. The height is twice the length of the base. The length of the base is twice its width. If the tank is closed, then find its surface area in m^2.

MARKS: 15 x 1 = 15
5 x 2 = 10
TOTAL: 25