SOUTH AFRICAN MATHEMATICAL LITERACY OLYMPIADS

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Mathematical Literacy Olympiad GRADE 10

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.

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Grade Ten Mathematical Literacy Olympiad 2024

1. Evaluate:

   20 - 20 x $\frac{1}{5}$

   (A) 24 (B) 20 (C) 18 (D) 16

2. Tanny was paid R65 per hour. What was her weekly pay if she works a 40-hour week?

   (A) R2 600 (B) R2 560 (C) R2 350 (D) R2 370

3. In a food factory, 4 kg of corn flour was mixed with $1\frac{1}{4}$ cups of milk. If 480 kg of corn flour was used, then determine how many cups of milk was used?

   (A) 125 (B) 150 (C) 175 (D) 200

4. When $\frac{7}{9}$ is written as a repeating decimal fraction then write down the sum of the 30 digits after the decimal point.

   (A) 210 (B) 180 (C) 150 (D) 120

5. One needs 3 litres of water to cook 250 grams of mealie meal. How much water in litres, at this rate, would be needed to cook 700 grams of mealie meal?

   (A) 8.8 (B) 8.4 (C) 8 (D) 7.6

6. The price of all items in a departmental store were reduced by 20% and then increased by 10%. What must the percentage decrease be when represented as a single %?

   (A) 9% (B) 10% (C) 12% (D) 14%

7. Sipho's monthly salary was increased from R30000 to R36000. What was the percentage increase?

   (A) 10% (B) 12% (C) 15% (D) 20%

8. Fruit juice is mixed in the ratio of water to concentrate as 5:1. 300 litres of water was used to make fruit juice. How many litres of concentrate was needed?

   (A) 70 (B) 60 (C) 54 (D) 50

9. The distance in km a missile travels in t seconds is given by:

$d(t) = - t^2 + 60t$

Determine the height the missile reached in the 30^{th} second.

(A) 720km (B) 800km (C) 840km (D) 900km

10. A car travels at an average speed of 90 km/h. If the car leaves at 9am and travels at the same average speed, then at what time will the car reach its destination which is 240km away?

(A) 11:40 (B) 11:50 (C) 12:10 (D) 12:20

11. A small photo of an elephant measures 120 mm x 90 mm. The photo is enlarged to 360mm x 270 mm. The elephant's tail in the smaller picture is 22 mm long. How long is the tail in the larger photo in mm?

12. 36 tables are manufactured in 48 hours. How many tables can be manufactured in 1152 hours?

13. The dimensions of a rectangular container are 12m by 3 m by 3.6 m. Determine the number of boxes measuring 60cm by 45 cm by 30cm that this container can take.

14. A school pays 15c per copy for printing and a monthly charge of R2000 per month. What will the school pay for 60 000 copies over 6 months in Rands?

15. It takes 4 pipes to fill a tub in 48 minutes. How long will it take, in minutes, for 3 pipes working at the same rate to fill the same tub? The pipes are the same size**.**

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16. Jen purchased furniture to the value of R72 000. She was charged simple interest at a rate of 9% per annum for 3 years. Calculate her monthly instalments.

17. Two dice are rolled, and the sum is found.
What is the probability that the sum is divisible by 3?

18. Used engine oil can be re-used by refining it again. A mechanic has a large drum that can hold 200 litres of used oil. Each millilitre of oil has an approximate weight of 0,828g. Calculate the total weight of the oil in the 200-litre barrel. Give your answer in kg.

19. The following exchange rates are applied:
    - 3 R s could be exchanged for 2 B s.
    - 4 R s could be exchanged for 3 C s.
    - 4 B s can be exchanged for 1 D.

    How many C s could one get for 2 D s?

20. Carey runs twice as fast as Daisy. If Daisy takes 20 minutes to cover the distance from her home to the school then how many minutes will it take Carey to overtake Daisy if Daisy has a lead of 6 minutes (They both begin from the same place)?

MARKS: 15 X 1 = 15
5 X 2 = 10

TOTAL = 25