SOUTH AFRICAN MATHEMATICAL LITERACY OLYMPIADS

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Mathematical Literacy Olympiad GRADE 11

DATE: 5 AUGUST 2025

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.

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Grade Eleven Mathematical Literacy Olympiad 2025

1. Evaluate:

   $8 - 8 \times \frac{7}{8}$

   (A) 0 (B) 1 (C) 7 (D) 8

2. Evaluate:

   $3245 \times 142 - 3245 \times 141$

   (A) 3 240 (B) 3 244 (C) 3 245 (D) 3 246

3. Evaluate:

   $480 \times 21\frac{15}{16}$

   (A) 930 (B) 10 000 (C) 10 500 (D) 10 530

4. The maximum mass of a lift is 2000kg. The maximum number of persons that can use the lift is 22. What is the mean (average) mass of each person to the nearest kg.

   (A) 90 (B) 92 (C) 93 (D) 94

5. A truck load of concrete is $8m^3$. 350 m^3 of concrete was to be removed from the site. How many loads are needed to remove all the concrete?

   (A) 42 (B) 43 (C) 44 (D) 45

6. Kerry takes out a loan at a bank for R20 000 at a simple interest of 16% per annum for 5 years. Calculate how much interest she will pay on the loan?

   (A) R 14 000 (B) R 16 000 (C) R 19 000 (D) R 15 000

7. A company manufactures 12000 desks in 36 hours. If they work at the same rate then how many desks will they manufacture in 90 hours

   (A) 36 000 (B) 32 000 (C) 30 000 (D) 28 000

8. A group of salespersons earned commission of 15% on sales. If the sales for the month was R2300000 (including commission) then determine the commission in rands earned by each of the 3 salespersons.

   (A) 80 000 (B) 84 000 (C) 90 000 (D) 100 000

9. The price of 1kw/h of electricity increased from R2.90 by 12%. What would a household pay for 750kw/h of electricity per month?

(A) R2 400 (B) R2 436 (C) R2 500 (D) R2 750

10. One fruit tree is grown in a rectangular piece of land measuring 3m by 2m. How many trees can be grown on a 200m by 200m orchard?

(A) 5 400 (B) 6 000 (C) 6 600 (D) 6 666

11. A company manufactures 10" tablets. The following is a breakdown of costs:
    - Fixed cost (FC) = R600000
    - Variable cost (VC) = x
    - Selling price (SP) = R2400

    Use the break- even point formula $\frac{FC}{SP-VR}$ to determine the variable cost if the break even cost is R375?

12. It took Ms Virginia 3 hours 20 minutes to cover 300 km from home to the holiday resort. Calculate Ms Virginia's average speed in km/h during the trip from home to holiday resort.

13. A smoke detector system in a large warehouse uses two devices, A and B. I f smoke is present, the probability that it will be detected by device A is 0,95. The probability that it will be detected by device B is 0,98 and the probability that it will be detected by both devices simultaneously is 0,94.
    If smoke is present, what is the probability that it will be detected by device A or device B?

14. 100 players had to select at least one of two disciplines, namely tennis and padel:
    - 50 selected padel.
    - 80 selected tennis.

    What is the probability that a player selected at random played padel and tennis?

15. Tickets were sold in the same ratio as their prices which was 3:2. If the total takings is R1800000 then determine the sales figure of the cheaper tickets.

16. To hire a big screen smart TV the charges are as follows:-
    Fixed charge of R500
    The Variable charge of R50 per day is increased by 20% once-off (It is same for the 522 days after the increase of 20%).
    If the number of days of hire is 522 then determine the cost of hire.

17. If an article costs R23400 and the exchange rate is €1: R 19.50, how much will the article cost in euros (€)?

18. Mr Zulu travelled from his home directly to a bank 34 km away. He travelled at an average speed of 85 km/h and arrived at the bank at 12:10.
    What time did he leave home?
    The following formula may be used: Distance = average speed × time

19. It takes 10 pipes to fill a reservoir in 3 days. How long in days will it take 6 such pipes, working at the at the same rate to fill the reservoir?

20. Mrs. Martins, a farmer, has a water tank on her farm in which she stores water for irrigation. The tank has a diameter of 220 cm and a height of 7,35 m
    The following formula and conversion rates may be used:

    Volume of a cylinder = $\pi \times (\text{radius})^2 \times$ height; using $\pi = 3{,}142$
    Circumference = $2\ \pi\ r$

    Calculate the volume of water to fill up this tank in m^3 (2 decimal digits).

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