SOUTHERN AFRICAN PRIMARY MATHEMATICS OLYMPIAD FEMSSISA

GRADE7

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DATE: 28 AUGUST 2023 – 1 SEPTEMBER 2023

TIME: 90 MINUTES

INSTRUCTIONS:

1. This booklet has 15 multiple choice and 5 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 not 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.

GRADE SEVEN

1. Evaluate: 30 - 30 x $\frac{5}{6}$

   (A) 5 (B) 6 (C) 7 (D) 8

2. Write down the value of: 3.6 x 25 x 1000

   (A) 900 (B) 9000 (C) 90000 (D) 99000

3. Find the value of: 625 x 110 – 125 x 99x5 – 25x 250

   (A) 1300 (B) 625 (C) 125 (D) 0

4. In the following subtraction problem find A+BxC = ……

   A B 8
   - 9 C
   6 B C

   (A) 58 (B) 59 (C) 68 (D) 79

5. If $\frac{1}{5}$ of the containers in a warehouse is 3000 then find $\frac{1}{3}$ of the containers.

   (A) 4500 (B) 5000 (C) 5500 (D) 6000

6. Santa received 2 discounts. The first discount was n% because it was a sale. He received a further discount of 20% because he is a gold card member. What is the value of n if both discounts are equal to 44%?

   (A) 50 (B) 40 (C) 35 (D) 30

7. When 2190 is divided by m the remainder is 30. What is the smallest value m can have?

(A) 21 (B) 28 (C) 36 (D) 34

8. The LCM of 2 numbers is 108. If the two numbers are in the ratio 3:4 then find the sum of the 2 numbers.

(A) 63 (B) 60 (C) 54 (D) 45

9. Cher travelled from Rand to Berg. She covered $\frac{1}{6}$ of the distance by bus, $\frac{1}{2}$ by train and the remaining distance of 180km by ferry. What is the distance in km between Rand and Berg?

(A) 540 (B) 360 (C) 600 (D) 480

10. A paint tank is $\frac{7}{8}$ full. When 120 blocks measuring 100cm by 100 cm by 15cm are dropped into the tank, the paint level rises to $\frac{11}{12}$ of the tank. What is the capacity of the tank in kl? (Note: 1000 litres = 1 kl and $1cm^3$ = 1ml)

(A) 332 (B) 432 (C) 456 (D) 480

11. The following addition is done in base 6.

$$\begin{array}{r} 254 \\ 423 \\ \underline{445} \\ \underline{2010} \end{array}$$

What is the answer to 454 + 325 + 333 in base 6?

(A) 1550 (B) 1540 (C) 2000 (D) 2010

12. Observe the following pattern:

3 5 7

9 11 13 15

17 19 21 23 25

.....

What is the 1st number of the 29th row?

(A) 931 (B) 929 (C) 927 (D) 925

13. The product of 2 numbers is 2688. If one number is 8 less than the other number then find the larger number.

(A) 44 (B) 48 (C) 52 (D) 56

14. Determine the value of: $1 + \frac{1}{1+\frac{1}{1+\frac{1}{4}}}$.

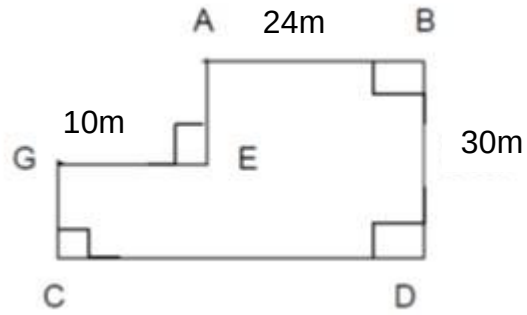
(A) $\frac{11}{7}$ (B) $\frac{9}{7}$ (C) $\frac{13}{9}$ (D) $\frac{14}{9}$

15. Calculate:

120 – 117 + 114 – 111 +.....+36

(A) 75 (B) 78 (C) 81 (D) 84

16. The cost of tiling this figure is R240 per m^2 and the total cost amounted to R201600. If GE = 10 metres; AB = 24 metres and BD = 30 metres then give the measurement of AE in metres.



17. An exchange shop allowed the following exchanges:

- 6 diamond discs for 9 gold discs.
- 4 emerald discs for 3 sapphire discs.
- 3 diamond discs for 2 sapphire discs.

How many emerald discs can one get for 27 gold discs?

18. What is the first time after 13:00 the angle between minute and the hour hand on an analogue clock is 80^0?

19. Evaluate:

$$\frac{4+8+12+\cdots+56}{3+6+9+\cdots+90}$$

20. Plastic numbers from 30 to 50 are such that when 2 numbers are added at a time, they give an answer that is divisible by 11. How many such combinations are there?

MARKS: 1-15: 15 X 1 = 15
16-20: 5 X 2 = 10

TOTAL: 25