SOUTHERN AFRICAN PRIMARY MATHEMATICS OLYMPIAD

FEMSSISA (SAPMO): GRADE SIX

DATE: 30 – 31 AUGUST; 1-10 SEPTEMBER 2021

TIME: 90 MINUTES

Instructions:

1. This booklet has 20 multiple choice 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 one 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. If learners are experiencing difficulty in respect of the language, then the invigilator can translate into the mother tongue.
9. Visit the website: www.saolympiads.co.za

ENJOY THE OLYMPIAD!

REGISTRATION NO: 2015/050119/08

GRADE SIX 2021

1. Evaluate : 12 - $\frac{1}{2}$ x 12

(A) 0 (B) 6 (C) 12 (D) 18

2. What is (10 ÷ 6) correct to 2 decimal digits?

(A) 1.56 (B) 1.57 (C) 1.67 (D) 1.87

3. Evaluate 202 x 201 - 201 x 201

(A) 201 (B) 202 (C) 203 (D) 204

4. In the following addition problem find A + B x C

B C

A B C

A B C

7 7 4

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

5. A vendor sold $\frac{2}{3}$ of the pockets of oranges. After selling 50 more pockets the vendor had $\frac{1}{4}$ of the pockets left. How many pockets did the vendor start with?

(A) 90 (B) 100 (C) 110 (D) 120

6. Dillon beat the 300 metres school record which was 38.1 seconds by 1.4 seconds. What was the new record in seconds?

(A) 33.9 (B) 36.7 (C) 35.7 (D) 34.7

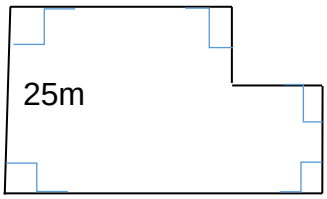
7. When the 4 digit number 343m is divided by 12 the remainder is 0. The value of m is ...

(A) 2 (B) 4 (C) 6 (D) 8

8. Determine the fraction x such that $\frac{1}{2}$ is midway between x and $\frac{9}{14}$.

(A) $\frac{5}{14}$ (B) $\frac{4}{7}$ (C) $\frac{3}{7}$ (D) $\frac{2}{7}$

9. Determine the perimeter in metres of the following figure.



48 m

(A) 158 (B) 154 (C) 150 (D) 146

10. Terry bought 9 toy cars for R38. He sells them at 5 for R32.

How many toy cars must he sell to make a profit of R980?

(A) 360 (B) 405 (C) 450 (D) 495

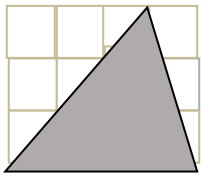
11. How much does 10 litres of liquid cost if 750 ml cost R54 at the same rate?

(A) R880 (B) R800 (C) R720 (D) R640

12. Virginia is 30 years and her mother is 54. How many years ago was she half her mother's age?

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

13. Determine the area of the shaded region:



(A) 12 (B) 10 (C) 8 (D) 6

14. It takes 15 minutes to cut a log into 6 pieces. Jacob cuts a similar log into 10 pieces working at the same rate. At what time did Jacob start cutting the log if he started the job at 09:00 without having any rest?

(A) 09:27 (B) 09:30 (C) 09:33 (D) 09:36

15. 

Five stops are on the same straight road. Stop Cairn is 250m to the left of Stop Protea. Stop Daisy is 90m to the right of Cairn. Stop Rose is 60m to the left of Stop Aster. Stop Aster is 100m to the right of Protea. How far in metres and in what direction is Daisy from Protea?

(A) 60 left (B) 160 left (C) 160 right (D) 60 right

16. Write down the last 3 digits of this product of 55555 x 99999:

(A) 550 (B) 555 (C) 445 (D) 455

17. My watch gains 5 minutes in every hour. The time was correct at 09:00. What was the actual time when the watch shows 15:30?

(A) 14:55 (B) 15:00 (C) 15:05 (D) 15:10

18. In a basketball match points were scored in only 2's and 3's. Aces scored 95 points from 40 shots. How many 2 pointers did the team score?

(A) 10 (B) 5 (C) 20 (D) 25

19. In the set of 30 plastic numbers from 11 to 30 the sum of two numbers is found such that it is divisible by 7. How many such combinations are there?

(A) 21 (B) 20 (C) 19 (D) 18

20. Calculate the sum of these fractions: $\frac{1}{2.4} + \frac{1}{4.6} + \frac{1}{6.8} + \cdots . + \frac{1}{20.22}$

(A) $\frac{10}{11}$ (B) $\frac{5}{11}$ (C) $\frac{5}{44}$ (D) $\frac{5}{22}$

SOUTHERN AFRICAN PRIMARY MATHEMATICS OLYMPIAD

FEMSSISA (SAPMO): GRADE SEVEN

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REGISTRATION NO: 2015/050119/08

GRADE SEVEN 2021

1. Evaluate 15 + 15 x $\frac{1}{3}$

   (A) 35 (B) 30 (C) 20 (D) 10

2. Write down the value of: 2.1 x 1.5 x 10

   (A) 31.5 (B) 32.5 (C) 33.5 (D) 34.5

3. Find the value of: 120 x 120 – 120 x119

   (A) 119 (B) 120 (C) 121 (D) 121

4. In the following addition problem find A+B+C:

   A B C
   B C
   B C
   4 2 C

   (A) 12 (B) 13 (C) 14 (D) 15

5. If $\frac{2}{9}$ of the blocks in the stack is 120 then find one third of the blocks in the stack.

   (A) 186 (B) 183 (C) 180 (D) 177

6. This is a Fibonacci type sequence: 3;3;6;9;15;……..

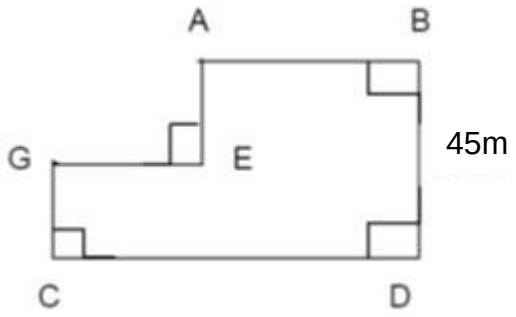
   If the n^{th} term x 11 = sum of the first 10 terms then the value of the nth term = ….

   (A) 24 (B) 39 (C) 63 (D) 112

7. When 710 is divided by p the remainder is 30. What is the smallest value p can have?

   (A) 31 (B) 32 (C) 33 (D) 34

8. The cost of fencing this lawn at R250 per metre amounted to R52 500.
If BD = 45 metres then give the measurement of CD in metres.



(A) 55 (B) 60 (C) 65 (D) 70

9. Evaluate:

$$\frac{4+8+12+\cdots+40}{6+9+12+\cdots+60}$$

(A) $\frac{1}{2}$ (B) $\frac{44}{81}$ (C) $\frac{2}{3}$ (D) $\frac{43}{81}$

10. A water tank is $\frac{3}{4}$ full. When 100 bricks measuring 200cm by 10 cm by 5cm are dropped into the tank the water level rises to $\frac{7}{8}$ of the tank.
What is the capacity of the tank in litres?

(A) 8000 (B) 7000 (C) 6000 (D) 5000

11. The LCM of 2 numbers is 120. If the two numbers are in the ratio 5:8, then find the product of the 2 numbers.

(A) 300 (B) 330 (C) 360 (D) 390

12. Observe the following pattern:

3 5
7 9 11
13 15 17 19
.....
What is the 3rd number of the 20th row?

(A) 419 (B) 421 (C) 423 (D) 425

13. In a cinema Lizzy is seated in the 9th row from the front and 8th column from the right. He is also seated 17th row from the back and 13th column from the left. How many seats in the cinema?

(A) 500 (B) 510 (C) 520 (D) 530

14. If $\frac{14}{9} = 1 + \frac{1}{1+\frac{1}{1+\frac{1}{x}}}$ then find the value of x.

(A) 2 (B) 3 (C) 4 (D) 5

15. 3 taxis leave the bus terminal at 06:00 White takes 20 minutes for a return. Red takes 30 minutes and Brown takes 40 minutes. They remain for 10 minutes at the terminal. At what time will all 3 leave the taxi terminal again?

(A) 15:00 (B) 16:00 (C) 17:00 (D) 18:00

16. Sally received 2 discounts. The first discount was 20% because it was a sale. He received a further discount of 20% because she is a gold card member. What are these discounts as a single discount as a %?

(A) 24 (B) 28 (C) 32 (D) 36

17. A vendor buys 9 bangles for R20. He sells them at 6 for R25.
How many bangles must he sell to make a profit of R700?

(A) 360 (B) 370 (C) 380 (D) 390

18. What is the angle in degrees between the minute hand and the hour hand on an analogue clock when the time shows 17:20?

(A) 30 (B) 40 (C) 50 (D) 60

19. Jen is twice as old as Mamba was when she was as old as Mamba is now. She is 40 years old. How old is Mamba?

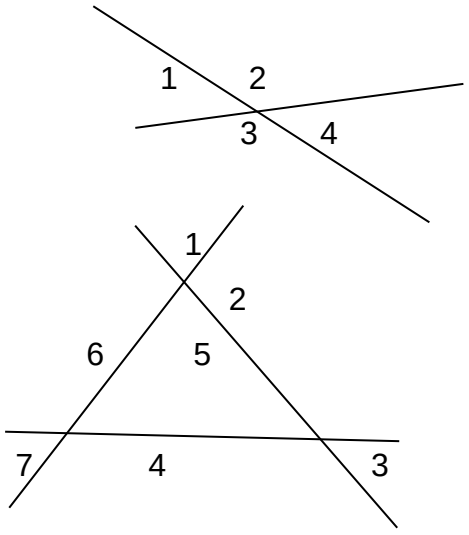
(A) 20 (B) 25 (C) 30 (D) 35

20.

2 lines divide the plane into 4 regions.

3 lines divide the plane into 7 regions.

4 lines divide the plane into 11 regions.



How many regions will 20 lines divide a plane into?

(A) 210 (B) 211 (C) 212 (D) 213