SOUTHERN AFRICAN PRIMARY MATHEMATICS OLYMPIAD

FEMSSISA (SAPMO)

GRADE FOUR

FINAL ROUND

DATE: 10 OCTOBER 2019

TIME: 120 MINUTES

Instructions:

1. This booklet has 20 questions.

2. Use the answer sheet provided. Write your answer in the block provided.

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 120 minutes for the paper which works out to an average of 6 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.

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NON PROFIT COMPANY
REGISTRATION NO: 2015/050119/08

GRADE FOUR: 2019 FINAL ROUND

1. Write down the 12th number of this addition sequence.

   13; 17; 21; 25; …

2. Find the value of ☐

   ☐ + ☐ + 12 = 50

3. If Jenna was 2 positions behind where she was standing she would have been in the middle of the queue. She was in position 31 from the front. How many people were in the queue.

4. Preline counted in 8's as follows:-
   6; 14; 22; 30; …
   She stopped at the 31st number. What number did she count last?

5. Guess the number I stand for.
   - I am a 3 digit number XYZ.
   - The sum of X and Y is 13
   - The sum of Y and Z is 15
   - I am less than 400.
   - The sum of X; Y and Z is 19.

6. In this subtraction certain digits have been replaced by letters.
   What is the value of A + B?

```
   5  B A
 - 1  2 7
   4 3 B
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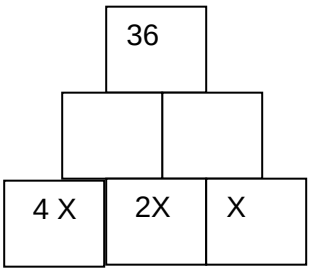
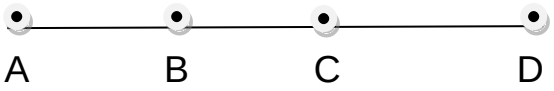
7. In the game below called "PYRAMATHS' the number on the left is halved and added to the number on the right to give the number in the box above. Find the number that should replace X.



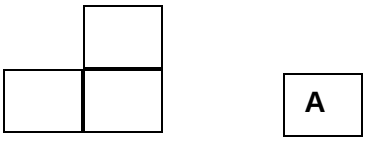
8. 

Four marshals A; B; C and D are on a straight road. The distance from A to C is 800 metres. The distance from B to D is 400metres and from A to D is 1200 metres.
What is the distance from C to D?

9. If one fifth of a certain number is 40 then what is one quarter of this number?

10. Renny has R50 more than 3 times as much money as Aryan. If both have R680 then how much does Aryan have?

11. How many lines of symmetry does this figure have if the square A can be attached to any side?

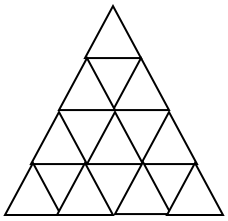


12. A container is $\frac{1}{2}$ full of water. When 120 litres are added then it Is $\frac{3}{4}$ full. What is the capacity of the container when full?

13. The cost of 5 litres of oil is R99. What would you pay for 1.5 litres of water at the same rate?

14. If the sum of the dates from Monday to Friday is 105 then what is the date of the 3rd Sunday of the month?

15. How many inverted triangles of all sizes in this figure?



16. Bes collected R200 more than half of Desiree. If both collected R2400 then what did Bes collect?

17. Study the following problem. Do you know what © is doing to the 2 numbers?

    6 © 4 = 4 7 © 3 = 8 9 © 6 = 6

    After you have discovered what © does then find the answer to

    7 © (4 © 2)

18. 6 cans of cooldrink cost R29.50. What will 18 such cans of cooldrink at the same rate cost?

19. A company made pentagonal tables with 5 legs and quadrangular tables with 4 legs. There were 240 legs and 60 tables. How many pentagonal tables were made?

20. The sum of the digits of a 3 digit number abc (a;b and c digits) is as follows:-

    a + b = 9

    b+ c = 12

    a - b = 5

    What is a + b + c ?

TOTAL: 15 x 1 = 15

5 x 2 = 10

25

SOUTHERN AFRICAN PRIMARY MATHEMATICS OLYMPIAD

FEMSSISA (SAPMO)

GRADE FIVE

FINAL ROUND

DATE: 10 OCTOBER 2019

TIME: 120 MINUTES

Instructions:

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2. Use the answer sheet provided. Write your answer in the block provided.

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 120 minutes for the paper which works out to an average of 6 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.

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NON PROFIT COMPANY
REGISTRATION NO: 2015/050119/08

1. Write down the 14th number of this addition sequence.

   7; 12; 17; 22; …

2. Find the value of ☐

   60 + ☐ = ☐ + ☐ +24

3. Learners were standing in a straight line. Des was standing between Bazil and Alviro. Enver was standing between Des and Alviro. Cordy was standing to the right of Alviro. Who was standing to the immediate left of Des?

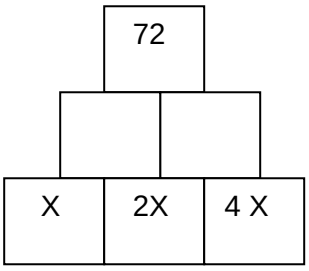
4. Jerry counted in 7's as follows:-
   28; 35; 42; 49; …
   She stopped at the 40th number. What number did she count last?

5. Find ☐ if
   2 x ☐ x ☐ = 128

6. In this subtraction certain digits have been replaced by letters.
   What is the value of A + B ?

$$\begin{array}{rr} & A\ A\ A \\ - & \ \ 4\ B \\ \hline & 1\ 7\ B \end{array}$$

7. In the game below called "PYRAMATHS' the number right is halved and added to the number on the left to give the number in the box above it. Find the number that should replace X.



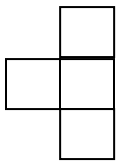
A B C D E

Five houses A; B; C ; D and E are on a straight road. The distance from A to E is 820m. The distance BC is 20 metres more than the distance DE which is 120 metres less than the distance from A to C.
The distance from C to E is 390 metres. What is the distance from B to C?

9. If $\frac{5}{8}$ of a certain number is 60 then what is $\frac{1}{2}$ of this number?

10. Portia has $\frac{1}{2}$ of the money less than Rose. If both have R1500 000 then how much does Rose have?

11. How many lines of symmetry does this figure have?



12. A container is $\frac{1}{3}$ full of water. When 40 litres are added then it is $\frac{1}{2}$ full. What is the capacity of the container when full?

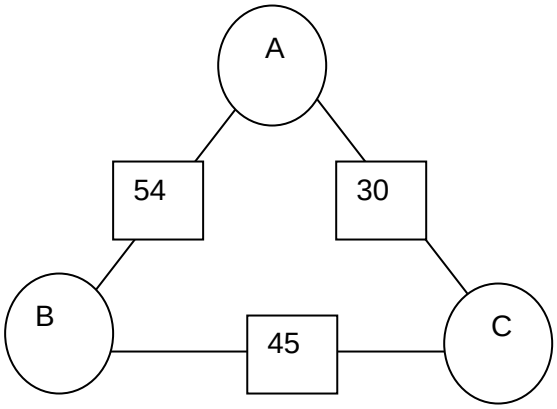
13. What is the value of 'n' if $\frac{5}{p} + \frac{1}{p} = \frac{3}{4}$

14. Study the following arrangement of numbers:-

1
2 3
4 5 6
……

What is the 3rd number from the left of 24th row?

15. In the game called Geogons the product of the 2 numbers in the 2 circles gives the number in the square between them.



What is the value A x B x C .

16. Determine the mystery number.
5 is added to the number. The new number is doubled. 4 is subtracted from the result. The answer is 30.

17. Linda has 3 times as many 20 cent coins as 50 cent coins. If the total value of the coins is R66 then what is the value of the 20 cent coins?
18. Desiree is 4 years more than half her mother's age. In 8 years' time her mother will be 60. What is Desiree's age?
19. Write down the sum of the digits of the following product.
33 333 x 22 222
20. Colour beads red(R) and white(W) were used to make a chain. The beads were arranged as follows:-
RR WW RR WWW RR WWWW RR WWWWWW RR…..
What is the colour of the 60^{th} bead from the left?

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

25

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SOUTHERN AFRICAN PRIMARY MATHEMATICS OLYMPIAD

FEMSSISA (SAPMO)

GRADE SIX

FINAL ROUND

DATE: 10 OCTOBER 2019

TIME: 120 MINUTES

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REGISTRATION NO: 2015/050119/08

GRADE SIX: 2019 FINAL ROUND

1. Write down the 16^{th} number of this addition sequence.

   6; 11; 16; 21; ….

2. Find the value of $\square$ is a natural number

   $28 + \square = \square \times \square - \square - \square$

3. What is the greatest product of three numbers whose sum is 26?

4. Find A x B x C if A; B and C are different.

$$\begin{array}{r} ABC \\ ABC \\ +\ BC \\ \hline 9\,C\,8 \end{array}$$

5. Find the sum of the digits of the quotient

   $\underbrace{888\ldots..888}_{12\text{ digits}} \div 111$

6. Evaluate

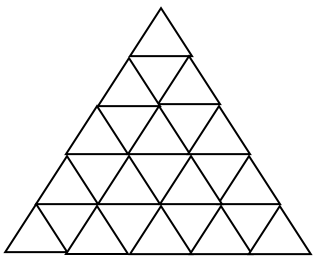
   123 x 377 + 123 x 23 - 123 x 300

7. Find the sum of:-

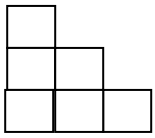
   2x2 +3x3 + 4x4 …. + 20x20

8. $\frac{3}{4}$ of a number more than the number exceeds the number by 36. Find the number.

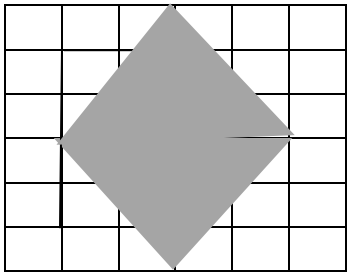
9. How many inverted triangles of all sizes are there in this figure?



10. 6 blocks are used to construct a staircase 3 steps high.
    How many blocks are needed to make a structure 20 steps high?



11. The difference in the ages of Kamy and Lily is 12 years. In 6 years' time Kamy will be twice Lily's age. What is Kamy's age?
12. Determine the area of the shaded region



13. It takes 15 minutes to cut a length of timber into 4 pieces. Damien cuts a similar length of timber into 10 pieces working at the same rate. At what time did Damien start cutting the timber if the job was completed at 10:00 ?

14. The average(mean) mark of 24 learners in a English Test is 30 whilst the average mark of the first 22 learners is 27. The 23^{rd} learner obtained 10 more marks than the 24^{th} learner.
    What is the mark of the 23^{rd} learner?

15. Write down the sum of the digits of this product.
    777 777 x 222 222

16. How many zeros does the following product end in?
    15 x 13 x 11 x 9 x 7 x 5 x 3 x 1

17. My watch gains 3 minutes every hour. The time was correct at 07:00.
    What was the watch time when the actual time 12:30 ?

18. In a basketball match points were scored in only 2's and 3's. Dream Team scored 105 points from 45 shots. How many 2 pointers did the team score?

19. Calculate x + y if the sum these fractions is $\frac{20}{21}$:-

$$\frac{1}{12} + \frac{1}{2.3} + \frac{1}{3.4} \ldots . + \frac{1}{x.y}$$

20. In a shopping spree of Petros spent $\frac{1}{4}$ of his money and he then spent R600. He still had $\frac{1}{3}$ of his money.
How much did he start of with?

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

25

SOUTHERN AFRICAN PRIMARY MATHEMATICS OLYMPIAD

FEMSSISA (SAPMO)

GRADE SEVEN

FINAL ROUND

DATE: 10 OCTOBER 2019

TIME: 120 MINUTES

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FEMSISA Grade 7 Final Round

1. Calculate $\frac{3}{4}$ x 101 x 8
2. On Wednesday 9 October 2019 April was 17 years old. On what day of the week will be 30 years?

3. 1225 beads are used to make 35 chains. How many beads are needed to make 25 such chains?
4. After making $\frac{5}{8}$ of the candle holders Barry still had 660 candle holders to make. How many candle holders were there altogether?

5. A floor measuring 6 metres by 4 metres was to be tiled using square tiles measuring 36 cm by 36 cm. How many full tiles were needed?
6. A company decided to distribute 50 chairs to each school. There were 200 surplus. This company decided to distribute 55 chairs per school and not to keep 50. How many chairs the company initially have?

7. Speedy won a 200 metre race in 20 seconds. Calculate the average speed in km per hour.

8. Calculate $\frac{1}{8-\frac{4}{4-\frac{1}{4}}}$ then find the value of x**.**
9. Evaluate
$$\frac{8+12+18+\cdots+80}{6+12+18\ldots+90}$$

10. A water tank is $\frac{1}{3}$ full. When 40 bricks measuring 25cm by 10 cm by 10 cm are dropped into the tank the water level rises to $\frac{3}{4}$ of the tank.
What is the capacity of the tank in litres?
11. Two numbers are in the ratio 9:13. The Lowest Common Multiple of the two numbers is 468. Find the smaller of the two numbers.
12. Observe the following pattern
5
7 9
11 13 15
17 19 21 23
.....
What is the 3rd number of the 16th row?

13. In a cinema Pam is seated in the 10^{th} row from the front and 8^{th} column from the right. She is also seated 21^{st} row from the back and 11^{th} column from the left. How many seats in the cinema?

14. How many different combinations of 3 composite numbers are there whose sum is 36?

15. A bus travels from Ramston to Lemon at an average speed of 80km/hr. The same bus returns at an average speed of 60km/hr. The time taken for travelling is 3,5 hours. What is the distance from Ramston to Lemon?

16. The school roll decreased by 20%. It then increased by 10%. If the overall decrease was 72 then what was the initial population of the school?

17. A vendor buys 5 oranges for R11.

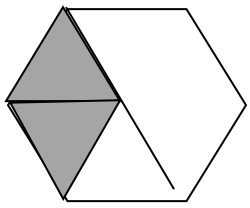
    He sells them at 4 for R15.

    If he sold 120 oranges then what was the profit?

18. Three numbers are such that the differences between any two numbers are 2; 6 and 8. The sum of the 3 numbers is 34. What is the smallest number?

19. When Farah works alone she can do a job in 6 hours. When Irene works she can do the same the same job in 9 hours. If both worked together and at the same rate then how long will take to complete half the job?

20. If the area of the shaded region of this regular hexagon is $12cm^2$ then calculate the area of the unshaded hexagon.



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