

**SOUTHERN AFRICAN JUNIOR MATHEMATICS OLYMPIAD
FEMSISA MATHEMATICS OLYMPIAD
(SAJMO)**

GRADE FOUR

ROUND ONE

DATE: 3-10 JUNE 2011

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.**
- 3. Calculators are not permitted..**
- 4. Diagrams are not necessarily drawn to scale.**
- 5. The first 15 problems carry one mark each and the next 5 carry 2 marks each.**
In order to qualify for the second round you need 7 out of 25 marks.
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- 8. Visit the website: www.mathematics-forall.com**

Grade Four Mathematics Olympiad

1. Find

$$\square - 13 = 15$$

- (A) 13 (B) 28 (C) 43 (D) 41

2. Which one of the following has the smallest remainder?

- (A) $402 \div 4$ (B) $503 \div 5$ (C) $604 \div 6$ (D) $75 \div 7$

3. How many people are there in a queue if the middle person is the thirteenth one?

- (A) 22 (B) 23 (C) 24 (D) 25

4. How many days from 12 March 2011 to 9 May 2011?

- (A) 58 (B) 57 (C) 52 (D) 51

5. The number seven thousand and twenty three can be written as

- (A) 7 230 (B) 7 203 (C) 7 023 (D) 7 230

6. 4 movie tickets cost R64. How much will 2 tickets cost at the same rate?

- (A) R128 (B) R48 (C) R32 (D) R16

7. How many legs will 12 horses and 5 chickens have altogether?

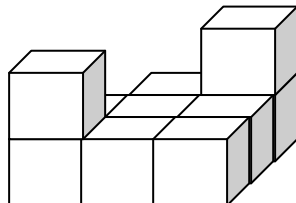
- (A) 17 (B) 58. (C) 44 (D) 48

8. What time will the clock show if you added an extra hour and fifteen minutes?



- (A) 3:25 (B) 10:17 (C) 11:17 (D) 11:25

9. How many blocks were used to build this structure?

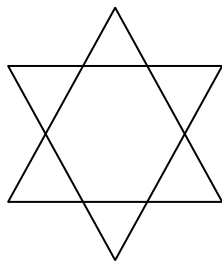


- (A) 10 (B) 9 (C) 11 (D) 16

10. If Sandy has R20 and spends all but R12, then how much money does he have left ?
(A) R8 (B) R32 (C) R12 (D) R20

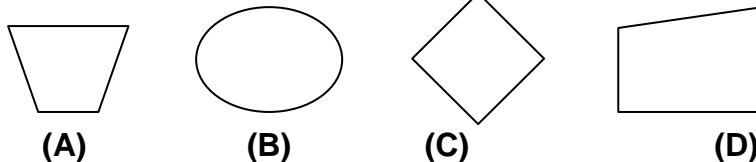
11. If today is Friday the 27th of February 2008 then what day will it be 28 days from today?
(A) Monday (B) Friday (C) Tuesday (D) Sunday

12. How many triangles are there in the figure below?



(A) 10 (B) 8 (C) 6 (D) 4

13. Which shape is the odd one out ?



(A) (B) (C) (D)

14. Brenda wants to buy some health sweets. Which of these is the best choice?

(A) 45c each (B) 2 for 85c (C) 3 for 140c (D) 4 for 175c

15. A club has 86 members. There are 14 more boys than girls. How many girls are there in the club?

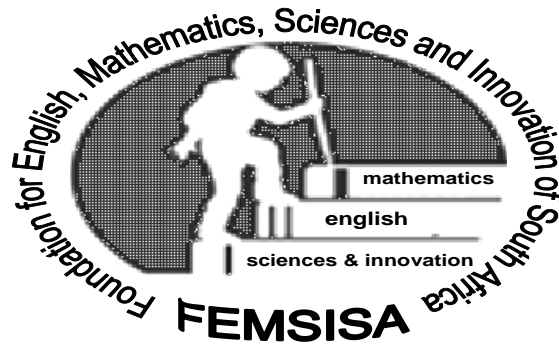
(A) 86 (B) 50 (C) 72 (D) 36

16. Basil, who is older than Peter by one year and one day, was born on 1 January 2002. When was Peter born?

(A) 2 January 2003 (B) 2 January 2001 (C) 31 December 2000
(D) 31 December 2002

17. Sophie draws kangaroos : a blue one, then a green, then a red, then a black, then a yellow, a blue, a green, a red, a black, and so on...What colour is the 17th kangaroo?
(A) blue (B) green (C) red (D) black
18. Jim bought 3 sleeping bags at R98 each. This is the same as...
(A) $3 \times R100 - R1$ (B) $3 \times R100 - R2$ (C) $3 \times R100 - R3$ (D) $3 \times R100 - R6$
19. You and 5 friends met at a party. Each one shook hands with each one. How many handshakes were there altogether?
(A) 5 (B) 6 (C) 30 (D) 25
20. Brenda is making biscuits. For every four biscuits she cuts out from the dough , there will be enough dough left to make one extra biscuit. After the first cutting she has 16 biscuits . How many biscuits did she make altogether?
(A) 5 (B) 9 (C) 20 (D) 21

MARKS : Numbers 1-15 : $15 \times 1 = 15$
Numbers 16-20: $5 \times 2 = 10$
TOTAL: 25



**SOUTHERN AFRICAN JUNIOR MATHEMATICS OLYMPIAD
FEMSISA MATHEMATICS OLYMPIAD
(SAJMO)
GRADE FIVE
ROUND ONE
DATE: 3-10 JUNE 2011
TIME: 90 MINUTES**

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18. Alvin scored a higher mark than Ben. Des scored a higher mark than Cheryl but a lower mark than Alvin. Ben scored a lower mark than Cheryl. Who scored the highest mark?

- (A) Alvin (B) Ben (C) Cheryl (D) Des

19. Jane cuts ribbon into 1 m lengths. It takes her 1 minute to measure and cut 1 m. How long will it take her to measure and cut 60 m?

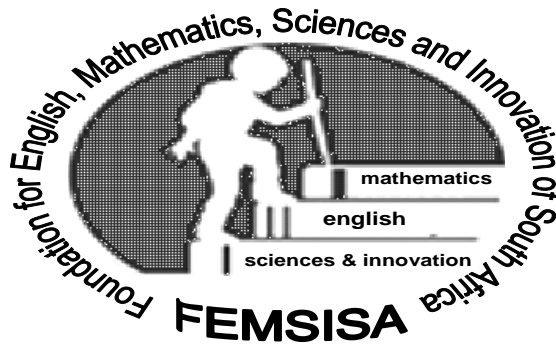
- (A) 60 (B) 62 (C) 59 (D) 61

20. When Pinky added two numbers she had 48. When she subtracted the two numbers her answer was 18.

The larger number was...

- (A) 27 (B) 30 (C) 33 (D) 36

**MARKS : Numbers 1-15 : $15 \times 1 = 15$
Numbers 16-20: $5 \times 2 = 10$
TOTAL: 25**



**SOUTHERN AFRICAN JUNIOR MATHEMATICS OLYMPIAD
FEMSISA MATHEMATICS OLYMPIAD
(SAJMO)
GRADE SIX
ROUND ONE
DATE: 3-10 JUNE 2011
TIME: 90 MINUTES**

Instructions:

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Grade Six Mathematics Olympiad

1. $16 \times 9 + 16 = \dots$
(A) 32×9 (B) 16×10 (C) 32×10 (D) 16×25
2. How many 16's are there in 3232.
(A) 200 (B) 202 (C) 222 (D) 201
3. If $n \times 13 = 52$ then $n = \dots$
(A) 39 (B) 29 (C) 4 (D) 3
4. If $P \div Q = R$ then $Q = \dots$
(A) $P + R$ (B) $P \times R$ (C) $P \times Q$ (D) $P \div R$
5. How many fifths are there in 12?
(A) 5 (B) 10 (C) 12 (D) 60
6. The number $2 \frac{1}{4}$ written as a decimal fraction is...
(A) 2,4 (B) 2,25 (C) 2,14 (D) 2,04
7. If $\frac{5}{8}$ of a class is 40 learners then how many learners are there in this class ?
(A) 40 (B) 48 (C) 45 (D) 64
8. Which one of the measurements is the longest.?
(A) 24,74m (B) 24,3m (C) 23,37m (D) 23,74m
9. A map shows a distance of 4cm between Atlantic and Bristol and 10 cm between Bristol and Winslow. The actual distance between Bristol and Winslow is 240km.
How far is it between Atlantic and Bristol ?
(A) 40km (B) 96km (C) 144km (D) 960km
10. Which of these decimal fractions lies between 0,7 and 0,8 ?
(A) 0,85 (B) 0,078 (C) 0,699 (D) 0,089

11. A wheel rotates 1,4 times in 1 minute. How many times does it rotate in 12 minutes ?

- (A) 13,4 (B) 16,8 (C) 142,8 (D) 168

12. $12\frac{1}{2}\%$ of 12800 kg = _____.

- (A) 160kg (B) 1060kg (C) 1600kg (D) 16kg

13. If the perimeter of a square ABCD is 5,2m, then its area in square metres is...

- (A) 2,6 (B) 1,34 (C) 1,69 (D) 5,2

14. A cinema charges R15 for admission. The 240 seats are placed in 18 rows and all but 24 seats are sold. Which working would give you the answer ?

- (A) $R15 \times (240 - 18)$ (B) $(240 - 18 - 24) \times R15$
(C) $(240 - 24) \times R15$ (D) $240 - (24 \times R15)$

15. How much does $4\frac{1}{2}$ litres of juice cost if 1 litre cost R7,50?

- (A) R37,50 (B) R40,00 (C) R42,50 (D) R45,00

16. Paul does laundry every 6th day and grocery shopping every 4th day. On 1 February he shops and does laundry. When is the next date he will do both chores ?

- (A) 11 February (B) 13 February (C) 15 February (D) 17 February

17. Which of the following regular polygons cannot tessellate ?

- (A) Square (B) Triangle (C) Octagon (D) hexagon

18. At a sale you received a discount of 25%. If an item costs R40,00 and you received a further mystery discount of 25%, how much would you pay for the item ?

- (A) R20,00 (B) R30,00 (C) R22,50 (D) R32,50

19. A unique plant doubles its height every month. It starts at a certain height . At the end of the 4th month it is 192cm which is its maximum height. What is the height, in cm, at the end of the 2nd month?

(A) 24

(B) 36

(C) 48

(D) 96

20. Did you know?

$$3! = 3 \times 2 \times 1$$

$$4! = 4 \times 3 \times 2 \times 1$$

$$5! = 5 \times 4 \times 3 \times 2 \times 1$$

How many zeros does 26! end in ?

(A) 2

(B) 3

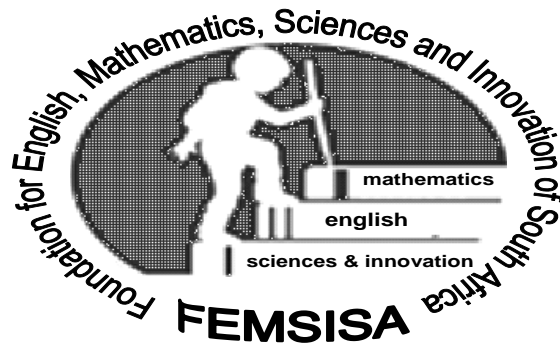
(C) 5

(D) 6

MARKS : Numbers 1-15 :15 X 1 = 15

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TOTAL: 25



SOUTHERN AFRICAN JUNIOR MATHEMATICS OLYMPIAD
FEMSISA MATHEMATICS OLYMPIAD

(SAJMO)

GRADE SEVEN

ROUND ONE

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Grade Seven Mathematics Olympiad

1. Evaluate

$$12 - 3 \times 4$$

- (A) 0 (B) 12 (C) 24 (D) 36 (E) 48

2. Write down the value of

$$0,2 \times 0,2 \times 0,2$$

- (A) 0,8 (B) 0,08 (C) 0,008 (D) 0,0008 (E) 8

3. Find the value of

$$\frac{4}{5} \times \left(\frac{3}{8} - \frac{1}{4} \right)$$

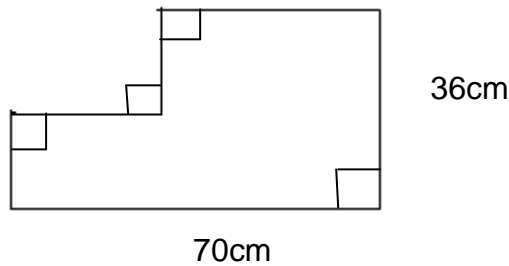
- (A) $\frac{1}{8}$ (B) $\frac{1}{6}$ (C) $\frac{1}{5}$ (D) $\frac{1}{4}$ (E) $\frac{1}{10}$

4. Find the value of:

$$1\,111 \times 111 - 1\,111 \times 110$$

- (A) 1 109 (B) 1 110 (C) 1 111 (D) 110 (E) 111

5. Find the perimeter of the figure:-



- (A) 212cm (B) 210cm (C) 208cm (D) 206cm (E) 204cm

6. What will the remainder be when 2003 is divided by 200?

- (A) 0 (B) 1 (C) 2 (D) 3 (E) 5

7. The product of 2 numbers is 1188 . If one number is 3 more than the other number then find the smaller number.

- (A) 32 (B) 33 (C) 34 (D) 35 (E) 36

8. Did you know that electricity is measured in kw hours (kilowatt hours)? If a household uses 161 kw for 6 days then estimate how many kw this household uses over 30 days month.

- (A) 800 (B) 801 (C) 802 (D) 803 (E) 805

9. The following addition is done in base 5.

$$\begin{array}{r} 122 \\ 344 \\ \underline{111} \\ \underline{1132} \end{array}$$

What is the answer to $342 + 124$ in base 5?

- (A) 466 (B) 1132 (C) 1021 (D) 532 (E) 411

10. Determine this 3 digit number

The number is divisible by 4.

The units digit is 6 more than the tens digit

The hundreds digit is 4 less than the units digit.

- (A) 206 (B) 208 (C) 210 (D) 428 (E) 628

11. Give the value of m such that $237m4$ is divisible by 9.

- (A) 2 (B) 3 (C) 4 (D) 6 (E) 9

12. Rewrite as a recurring decimal fraction $\frac{5}{12}$

- (A) $0.\dot{4}$ (B) $0.\dot{4}\dot{5}$ (C) $0.58\dot{3}$ (D) $0.41\dot{6}$ (E) $0.4\dot{6}$

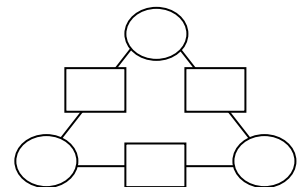
13. If the 27th day of the month falls on Monday the what was the date on the 2nd Tuesday of the month?

- (A) 6th (B) 7th (C) 14th (D) 16th (E) 21st

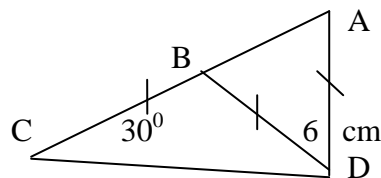
14. The sum of two numbers in the circles gives the number in the square between them.

If the numbers in the 3 squares is 68 then find the sum of the numbers in the 3 circles.

- (A) 136 (B) 34 (C) 68 (D) 17 (E) 22



15.



Determine the length of AC if $BD = 6\text{cm}$; $\hat{C} = 30^\circ$ and $BC = BD = AD$

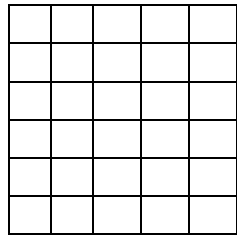
- (A) 8cm (B) 9cm (C) 10cm (D) 11cm (E) 12cm

16. Did you know 4; 5 and 6 are consecutive numbers; 1;3;5 are odd consecutive numbers.

If the sum of three consecutive even numbers is 66 then give the largest number.

- (A) 22 (B) 24 (C) 28 (D) 33 (E) 64

17. How many squares of all sizes are there in the figure?



- (A) 51 (B) 53 (C) 55 (D) 57 (E) 59

18. 17 oranges are shared among 3 girls such that the first gets half of it; the second gets one third of it and the third gets one ninth of it. How many oranges does the second get?

- (A) 3 (B) 4 (C) 5 (D) 6 (E) 7

19. The total number of legs needed to make 3 leg and 4 leg tables is 120. If the number of 4 leg tables is half the number of 3 leg tables the determine the number of 3 leg tables.

- (A) 12 (B) 15 (C) 18 (D) 21 (E) 24

20. A hawker has 4 weights to weigh items from 1 kg to 40kg (natural number values only). What are the 4 weights in kg?

- (A) 1;2;10; 27 (B) 1; 3; 9; 27 (C) 2; 3; 8; 27 (D) 3;4;7;27

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