



SAOU

## WISKUNDE-IN-AKSIE QUESTION PAPER FOR GRADE 6 AND 7

17 OCTOBER 2014 – 14:00-15:00

TIME: 60 MINUTES

Examiner: Prof. Marthie van der Walt  
Moderator: Prof. Kobus Maree

### INSTRUCTIONS

1. You may use calculators when writing this question paper.
2. Learners should make sure that their question paper consists of all the pages (13 pages and 42 questions).
3. Learners should immediately fill in their personal details on the answer sheet.  
**School and learner codes must be filled in on the answer sheet.**
4. Answer all questions on the **answer sheet** provided. All multiple-choice questions (questions 1 to 40) are answered on the **front page** and questions 41 and 42 are answered on the **back** of the answer sheet.
5. **Answer sheet for multiple-choice questions:** Choose only one of the options (a, b, c, d, or e) and use the answer sheet provided to indicate, clearly shaded, the answer you choose. Only **one** answer per question is allowed. No marks will be allocated if more than one answer is given in a question.
6. Calculations can be done on the question paper or on a separate clean page that the teacher/invigilator gives you.
7. A maximum of **60 minutes** are allowed to complete the question paper.
8. Your answer sheet will be collected after 60 minutes.
9. **NB! Answer the first 40 questions on the multiple-choice answer sheet. When the learner has finished this, he/she can turn over the answer sheet and complete questions 41 and 42 at the back of the answer sheet.**

**MULTIPLE-CHOICE QUESTIONS**

1. Which one of the following number sentences is false?

- a.  $7 + 2 = 2 + 7$
- b.  $(4 \times 2) + (4 \times 3) = 4(2 + 3)$
- c.  $12 \times 13 = 13 \times 12$
- d.  $6 \div 3 = 3 \div 6$
- e.  $5 \times 0 = 0$

2. Write 80% as a decimal number and then as an ordinary fraction in its simplest form.

- a. 0,8 and  $\frac{8}{10}$
- b. 0,8 and eight hundredths
- c. 0,08 and  $\frac{8}{1\ 000}$
- d. 0,08 and  $\frac{80}{100}$
- e. 0,8 and  $\frac{4}{5}$

3. Calculate the following:  $7 + \left(\frac{1}{4} \div \frac{2}{3}\right) + \sqrt{49}$

- a.  $14\frac{1}{6}$
- b.  $14\frac{2}{7}$
- c.  $2\ 408\frac{3}{8}$
- d.  $14\frac{3}{8}$
- e.  $2\ 408\frac{1}{6}$

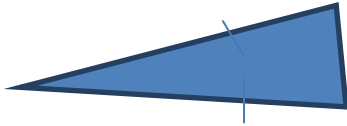
4. Calculate  $[22 + (5 \times 3) - 4^2]$

- a. 21
- b. 160
- c. 14
- d. 22
- e. 29

5. Ann buys a TV. The price was reduced by a  $\frac{1}{4}$  on a sale. If she pays R12 000,00 for the TV, what was the original price?
- R3 000,00
  - R12 000,00
  - R16 000,00
  - R9 000,00
  - R4 000,00
6. John wants to build another shelf into his cupboard. The hardware shop only sells wood in lengths of 1,2 metre. He asks them to cut off a quarter so that it can fit into his cupboard. What is the length in centimetres of the piece that was cut off?
- 0,3 m
  - 1,5 m
  - 30 cm
  - 4,8 m
  - 15 cm
7. The South African rand (ZAR) sells at R16,00 for the American dollar (\$), R20,00 for the British pound (£) and R15,00 for a Euro (€). How many American dollars can you buy for R11 200,00?
- 847 British pound (£)
  - 550 American dollars (\$)
  - R700,00
  - 700 American dollars (\$)
  - 550 Euro (€)
8. Complete the following number pattern:
- $$1 \times 8 + 1 = 9$$
- $$12 \times 8 + 2 = 98$$
- $$123 \times 8 + 3 = 987$$
- $$1234 \times 8 + 4 = 9876$$
- $$12345 \times 8 + 5 = \dots\dots\dots?$$
- $1234 \times 9 + 6$
  - 987 65
  - 987 123 456
  - $98765 = 1234567$
  - 98 7654

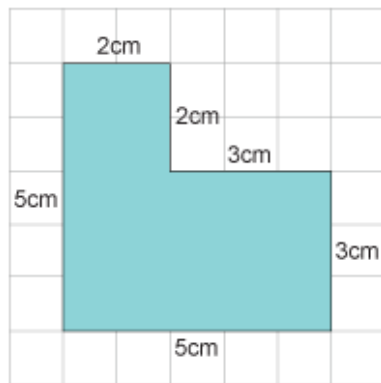
9. **Together Peter and Gabriel are paid R150,00 for the three hours they worked at the tuck shop at school. If Peter worked for two hours and Gabriel for one hour at the same rate of pay per hour, how much did Peter earn?**
- a. Peter earns R150,00
  - b. Gabriel earns R50,00
  - c. Peter earns R100,00
  - d. Peter earns R75,00
  - e. Gabriel earns R100,00
10. **Ms De Beer did a survey on Monday in her Grade 6 class: twenty of the learners in the class indicated that they would be interested to join the class on the Saturday to go ice-skating. When Ms De Beer again does a survey on Friday to finalise arrangements, all but 5 (five) withdraw. How many learners did want to go ice-skating on Friday?**
- a. 20
  - b. 25
  - c. 15
  - d. 5
  - e. All
11. **Mr Jooste does a survey in his Grade 6 class consisting of 35 learners. Twenty four of these learners like Mathematics and 19 like Afrikaans. There are 12 learners who like both Mathematics and Afrikaans. How many learners do not like either Mathematics or Afrikaans?**
- a. 19
  - b. 7
  - c. 12
  - d. 31
  - e. 4
12. **Suppose the first rugby team of the Fun-Learning Primary School is the league winners every second year, and the netball team is the league winners every third year. If both teams won their leagues in 2014, in which same year will the two teams both be league winners again?**
- a. 2016
  - b. 2020
  - c. 2018
  - d. 2017
  - e. 2022

13. What type of triangle is the following?



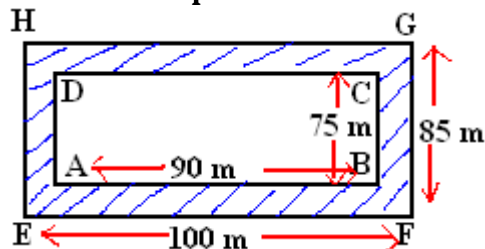
- a. equilateral triangle
- b. arbitrary triangle
- c. isosceles triangle
- d. right-angled triangle
- e. acute-angled triangle

14. Determine the circumference of the figure below.



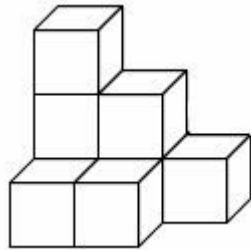
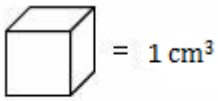
- a. 22 cm
- b. 20 cm
- c. 25 cm<sup>2</sup>
- d. 20 m
- e. 22 cm<sup>2</sup>

15. Uncle Chris has to fence a rectangular piece of land that measures 100 m x 85 m (EFGH; see the sketch below) so that he can grow vegetables on the 90 m x 75 m area (ABCD) can plant. He makes a path around the area where he wants to grow vegetables. What is the width of the path he makes?



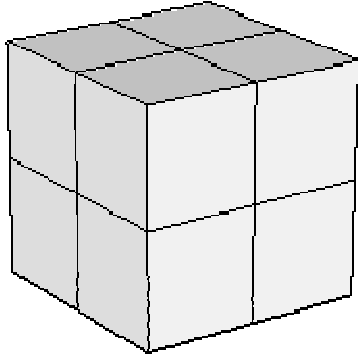
- a. 10 m
- b. 10 m<sup>2</sup>
- c. 100 m
- d. 5 m
- e. 5 m<sup>2</sup>

16. If one block presents one  $\text{cm}^3$  or one cubic centimetre, what is the volume of the object below?



- a.  $8 \text{ cm}^3$   
 b.  $8 \text{ cm}$   
 c.  $6 \text{ cm}^3$   
 d.  $6 \text{ cm}^3$   
 e.  $8 \text{ cm}^2$
17. What are the following three numbers in the number pattern: 1, 2, 3, 7, 8, 9, 13, 14,     ,     ,     ?
- a. 15, 16, 17  
 b. 18, 19, 20  
 c. 15, 19, 20  
 d. 19, 20, 21  
 e. 16, 17, 18
18. Thomas has a container full of custard biscuits. He eats 5 of them himself. The remaining biscuits are eaten by his six friends. The first friend to arrive eats 1; the second friend eats 3; the third friend eats 5; and so it continues in the same way up to the sixth friend. When the sixth friend has taken his biscuits, the container is empty. How many custard biscuits were originally in the container before Thomas started to eat his 5 biscuits?
- a. 36  
 b. 9  
 c. 41  
 d. 30  
 e. 14
19. List the prime numbers greater than 10 and less than 20.
- a. 11, 13, 15, 17, 19  
 b. 11, 13, 17, 19,  
 c. 7, 11, 13, 17, 19, 9  
 d. 20  
 e. 12, 14, 16, 18

20. Sam glues 8 cubes together, which he had arranged in a square block (see the sketch below). Thereafter he dips the square object into red paint. If he takes the cubes apart again, how many surfaces will not be painted red?



- a. 20
- b. 8
- c. 12
- d. 16
- e. 24

21. The product of 7 and 11 is equal to 77. List all the factors of 77.

- a. 7 and 11
- b. 1, 7 and 11
- c. 1, 7, 11 and 77
- d. 7, 11 and 77
- e. 1, 7 and 77

22. Write the following number in standard form (numerals):

**Two million eighty eight thousand four hundred and twenty three.**

- a. 2 088 423
- b. 288 423
- c. 2 000 880 423
- d. 2 880 423
- e. 2 880 432

23. Sally is in Grade 7. Her teacher asks them to write the number five hundred and eleven thousand in numerals.

Sally writes 500 11 000. Is Sally's answer correct? If it is not correct, what is the correct answer?

- Sally's answer is incorrect. The correct answer is 511.
- Sally's answer is correct.
- Sally's answer is incorrect. The correct answer is 5 1100.
- Sally's answer is incorrect. The correct answer is 511000000.
- Sally's answer is incorrect. The correct answer is 511000.

24. Mary subtracts 162 from 324. Her answer looks like this:

$$\begin{array}{r} 324 \\ -162 \\ \hline 242 \end{array}$$

Is her answer correct or incorrect? If it is incorrect, what is the mistake she made?

- Mary's answer is correct.
- Mary's answer is wrong. She is adding the numbers.
- Mary's answer is wrong. She is adding the bigger number in the ten place value to the smaller number in the ten place value.
- Mary's answer is wrong. She is subtracting the smaller number in the ten place value from the bigger number in the ten place value.
- Mary's answer is wrong. She does not understand the meaning of adding.

25. The following are equivalent fractions. Fill in the numeral that is omitted.

$$\frac{3}{4} = \frac{\square}{12}$$

- $\frac{3}{4} = \frac{9}{12}$
- $\frac{3}{4} = \frac{12}{12}$
- $\frac{3}{4} = \frac{8}{12}$
- $\frac{3}{4} = \frac{3}{12}$
- $\frac{3}{4} = \frac{4}{12}$



26. In a group of 60 Grade 7 learners, 20% scored between 65 and 70 out of 100 for their first Mathematics test. How many learners in the group didn't score between 65 and 70 out of 100?
- a. 12
  - b. 24
  - c. 48
  - d. 36
  - e. 65
27. Ms Truter makes chocolate ice-cream for a home industry shop. The recipe needs 100 mℓ cream for 5 people. How much cream does she need to make chocolate ice-cream for 8 people?
- a. 20 mℓ
  - b. 80 mℓ
  - c. 100 mℓ
  - d. 200 mℓ
  - e. 160 mℓ
28. If 250 babies are born in the world every minute, how many babies are born in half an hour?
- a. 15 000
  - b. 7 500
  - c. 250 000
  - d. 25 000
  - e. 30 000
29. It takes a train three and a half hours to travel 350 km. What was the average speed of the train?
- a. 350 km
  - b. 100 km per hour
  - c. 100 hours
  - d. 350 km per hour
  - e. 50 km per hour

30. A deli sells 4 (four) different ice-cream flavours. These flavours are strawberry, chocolate, grenadilla and vanilla. Two different flavours of ice-cream are sold together in a cup. How many combinations of two flavours are possible?
- 6
  - 2
  - 3
  - 8
  - 10
31. What is the probability when throwing a die, that the outcome will be less than five?
- 4 out of each six throws
  - 5 out of each six throws
  - 6 out of each six throws
  - 6 out of each four throws
  - 6 out of each five throws
32. The table below presents the frequencies of learners in the Fun-Learning Primary School. Investigate the table and then answer the following question: How many fewer learners are in the foundation phase than in the intermediate phase?

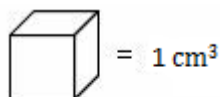
Grade	Phase	Number of learners
R		68
1	Foundation phase	72
2		70
3		86
4	Intermediate phase	83
5		80
6		85
7	Senior phase	82

- 98
- 626
- 398
- 78
- 20

33. Uncle Chris has two big fields where his cattle and sheep graze. Half of his animals graze in the field closest to his house. If there are 125 cattle and 312 sheep in the field closest to his house, how many sheep are grazing in the other field with 318 cattle?
- 437
  - 119
  - 755
  - 443
  - 318
34. The sum of 5 numbers is 3 505. Four of these numbers are: 247, 987, 654 and 703. What is the average of the five numbers?
- 71
  - 2 591
  - 914
  - 701
  - 654
35. Investigate the patterns in the multiplication pairs given in blocks A to F below and then give the numbers omitted in block E and block F.

Block A	Block B	Block C	Block D	Block E	Block F
$5 \times 6 = 30$	$6 \times 7 = 42$	$7 \times 8 = 56$	$8 \times 9 = 72$	$15 \times 16 = 240$	$20 \times 21 = \dots\dots\dots$
$4 \times 7 = 28$	$5 \times 8 = 40$	$6 \times 9 = 54$	$7 \times 10 = 70$	$14 \times 17 = \dots\dots\dots$	$19 \times 22 = 418$

- Block E 238, Block F 420
  - Block E 240, Block F 420
  - Block E 238, Block F 418
  - Block F 660, Block E 646
  - Block E 110, Block F 142
36. One cubic centimetre or  $\text{cm}^3$  (see the sketch below), has side lengths equal to 1 cm (one centimetre). The volume of the cube is  $1 \text{ cm}^3$ . Peter wants to calculate the volume of a cube with side lengths equal to 3 cm. What is the volume of this cube?



- $1 \text{ cm}^3$
- $3 \text{ cm}^3$
- 6 cm
- $27 \text{ cm}^3$
- 9 cm

37. Rick, Susan, Will and Janine are all in Grade 7. Each one of them is the top performer in one of the following subjects: Mathematics, Afrikaans, Social Science and Natural Science. Rick is the top performer in Afrikaans, Janine is not the top performer in Natural Science. If Will is the top performer in Social Science, in which subject is Susan the top performer?
- Mathematics
  - Afrikaans
  - Natural Science
  - Social Science
  - None of these subjects
38. Which of the following is not equal to one million?
- $10 \times 100\,000$
  - $1\,000 \times 1\,000$
  - $100 \times 100 \times 10$
  - $10 \times 10 \times 10 \times 10 \times 10 \times 10$
  - $100 \times 100 \times 100$
39. The sum of the first two numbers ( $8 + 11$ ) in a number strip is equal to the third number (19). The sum of the second and third numbers ( $11 + 19$ ) in the number strip is equal to the fourth number (30).

Example:

8	11	19	30
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Calculate the two numbers omitted in the following number strip.

16		47	
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- 8 and 11
  - 16 and 63
  - 47 and 31
  - 47 and 78
  - 31 and 78
40. It takes Wian 2 (two) days to paint a wall and it takes Jaco 3 (three) days to paint the same wall. How long will it take Wian and Jaco to paint the wall together?
- 1 day
  - $1\frac{1}{5}$  day
  - 5 days
  - 6 days
  - $2\frac{1}{6}$  day
-

**Questions 41 and 42 should be done at the back of the multiple-choice answer sheet in the spaces provided.**

**QUESTION 41:**

The Grade 7 learners wrote a revision test. Liezl did a division sum as follows:

$$\begin{array}{r} 3 \overline{)2412} \\ \underline{84} \phantom{00} \\ 84 \phantom{00} \\ \underline{00} \phantom{00} \\ 00 \phantom{00} \end{array}$$

41.1 Three (3) marks are allocated. How many marks will you allocate Liezl? \_\_\_\_\_

If you gave Liezl full marks (3) in 41.1, you don't have to answer 41.2 and 41.3.

41.2 If you didn't allocate full marks to Liezl in 41.1, what is the mistake she made?

41.3 How will you explain the sum to Liezl so that she will not make the same mistake in future?

**QUESTION 42:**

Explain why Mathematics is important for your future.

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**THE FOLLOWING RESOURCES ARE ACKNOWLEDGED:**

- Ask-Math. 2010-2013. *Area and perimeter of therectangle*. <http://www.ask-math.com/area-and-perimeter-of-the-rectangle.html> (Besoek: 11 Augustus 2014)
- BBC. 2014. KS3 BitesizeMaths. <http://www.bbc.co.uk/bitesize/ks3/maths/measures/perimeter/revision/3/> (Besoek: 11 Augustus 2014)
- Ibibe. 2014. *Theseed institute*. <http://www.seedinstitute.com/default.php?group=1&def=Fear%20God> (Besoek: 11 Augustus 2014)
- iCoachMath. 1998 – 2013. Cubicunit. [http://www.icoachmath.com/math\\_dictionary/cubic\\_centimeter.html](http://www.icoachmath.com/math_dictionary/cubic_centimeter.html) (Besoek: 11 Augustus 2014)
- Pennsylvania Department of Education. 2013-2014. *Pennsylvania system of schoolassessment: Mathematics preliminary item and scoringsampler. Second open-ended question*. pp 46-47.
- [https://www.google.co.za/url?url=https://www.portal.state.pa.us/portal/server.pt/document/1363657/2013-4\\_mathematics\\_preliminary\\_item\\_and\\_scoring\\_sampler\\_grade\\_3\\_pdf&rct=j&frm=1&q=&src=s&sa=U&ei=-1zoU9fuJMSN7Qb3k4GIDg&ved=0CBMQFjAA&usq=AFQjCNFyVLubdz5kNikhwYCT9yLeVKdkbQ](https://www.google.co.za/url?url=https://www.portal.state.pa.us/portal/server.pt/document/1363657/2013-4_mathematics_preliminary_item_and_scoring_sampler_grade_3_pdf&rct=j&frm=1&q=&src=s&sa=U&ei=-1zoU9fuJMSN7Qb3k4GIDg&ved=0CBMQFjAA&usq=AFQjCNFyVLubdz5kNikhwYCT9yLeVKdkbQ) (Besoek: 11 Augustus 2014)
- Sobecki, D., Bluman, A.G., Schirck-Matthews, A. 2011. *Math in ourworld* (2<sup>nd</sup> Ed). McGraw Hill: New York.
- TheMath Forum. *ASK DR.MATH questions&answersfromourarchives* (2/15/1996). <http://mathforum.org/library/drmath/view/58597.html> (Besoek: 4 Augustus 2014).