



Basic Education

KwaZulu-Natal Department of Education

REPUBLIC OF SOUTH AFRICA

UMLAZI DISTRICT

MATHEMATICS

COMMON TEST

MARCH 2018

NATIONAL
SENIOR CERTIFICATE

GRADE 8

MARKS: 75

TIME: 1,5 hours

This question paper consists of 5 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions:

1. This question paper consists of 7 questions.
2. Answer ALL the questions.
3. Clearly show ALL calculations, diagrams, graphs, et cetera, which you have used in determining the answers.
4. Answers only will NOT necessarily be awarded full marks.
5. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
6. If necessary, round off answers to TWO decimal places, unless stated otherwise.
7. Number the answers correctly according to the numbering system used in this question paper.
8. Write neatly and legibly.

QUESTION 1

1.1 Select the correct symbol: $>$; $<$ or $=$ to make each of the statements true.

1.1.1 -27 _____ -20 (1)

1.1.2 xy _____ yx (1)

1.2 Arrange the following numbers in ascending order. Show all working.

$$-\frac{13}{6}; -\sqrt{7^2}; (-1)^3; (-1)^2 \quad (4)$$

1.3 Write down the additive inverse of $\sqrt[3]{8}$ as an integer. (1)

1.4 Determine the sum of all the integers from -50 to 51 . (2)

QUESTION 2 [9]

2.1 List the composite factors of 24 . (2)

2.2 Determine the prime factors of 12 and 36 , by using the factor ladder. (4)

2.3 Determine the HCF of 12 and 36 . (2)

2.4 Determine the LCM of 12 and 36 . (2)

QUESTION 3 [10]

Calculate the following, without the use of a calculator. Show all working.

3.1 $\sqrt{64} + \sqrt{25 - 16}$ (2)

3.2 $-2 + 3 \times 6 - (-4)$ (2)

3.3 $(5^4 \div 5^2) - (5^4 \div 5^3)$ (3)

3.4 $\sqrt[3]{\frac{1}{8}} - (-3)^2$ (3)

[10]

QUESTION 4

4.1 Consider the following algebraic expression:

$$-2x^2 + 4xy^2 - 5x^3y + 4$$

4.1.1 Write down the number of terms in the expression. (1)

4.1.2 Write down the coefficient of x^2 . (1)

4.1.3 Write down the constant term. (1)

4.2 Simplify the following:

4.2.1 $4a - 2a + a$ (1)

4.2.2 $4 \times a \times 2b \times c$ (1)

4.2.3 $\sqrt[3]{x^6} - (3x)^2 + (x^2)^3$ (4)

4.2.4 $3(x + 3y) - (y - 2x)$ (3)

4.3 Determine the value of $3b^2 + c^3 - a$ if:
 $a = -2$; $b = 1$; $c = 3$. Show all working. (3)

4.4 Subtract $2p^2 - 3q - 2$ from $4p^2 + 7q - 12$. (4)

[19]

QUESTION 5

5.1 A bill shows that the amount owing for water to the amount owing for electricity is in the ratio 3: 5. If the total amount owing is R320, determine how much owing for electricity. (3)

5.2 Mr Mthembu lives 40 km from work. If he drives at an average speed of 80km/h, calculate how long in minutes, does it take for him to travel from home to work. (1)

5.3 Mrs Smith invests R10 500 in a bank account for 8 years at 12% p.a. simple interest. Mrs Smith will use this investment and the interest earned over the 8 years to pay for her daughter to go on an excursion. Calculate the cost of the excursion. (3)

5.4 Mr Mhlangu wishes to purchase a flat screen HD TV that costs R14 500 on a hire-purchase agreement. In terms of the agreement, Mr Mhlangu is required to pay of deposit of 12% of the cost price of the TV. Calculate how much Mr Mhlangu will pay as deposit. (2)

[9]

QUESTION 6

6.1 Use the phrases below to create algebraic expressions. Where the variable has not been given, use the variable x .

6.1.1 x is increased by 10. (1)

6.1.2 The product of a and b . (1)

6.1.3 A certain number multiplied by itself. (1)

6.2 Jolene thinks of a number. When she adds 10 to double this number, the result is six less than the number that she originally thought of. Use an equation to calculate the number that Jolene thought of. (4)

[7]

QUESTION 7

7.1 Given the pattern:

2 ; 9 ; 16 ; 23 ; ...

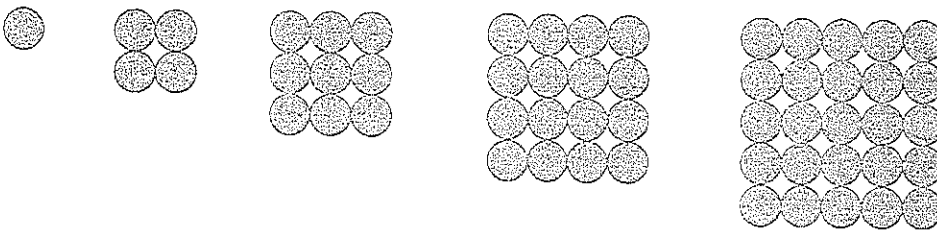
7.1.1 Write down the next two terms. (1)

7.1.2 Write down a formula (the general term) for the number sequence above. (2)

7.1.3 Calculate the 25th term of this sequence. (2)

7.1.4 Determine if 65 is part of this sequence. (2)

7.2 Refer to the diagram below and answer the questions that follow:



7.2.1 State the number of dots that would make up the next square. (1)

7.2.2 Write the rule for the above relationship in words. (1)

7.2.3 Calculate how many dots would be present in the 100th diagram. (2)

[11]

TOTAL MARKS: 75

