



EST. 1863

MARITZBURG COLLEGE

**JUNE
EXAMINATIONS**

GRADE 8

MATHEMATICS

JUNE 2018

**EXAMINER: MRS DEYZEL
MARKS: 120**

**MODERATOR: MRS MOFFATT
TIME: 2 HOURS**

This question paper consists of 7 pages.

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. Write your name and your mathematics teacher's name on your answer booklet.
2. This question paper consists of 9 questions.
3. Answer **ALL** the questions.
4. Clearly show **ALL** calculations, diagrams, graphs et cetera that you have used in determining your answers.
5. Answers only will not necessarily be awarded full marks.
6. **NO CALCULATORS ARE ALLOWED.**
7. Number the answers correctly according to the numbering system used in this question paper.
8. Write legibly and present your work neatly.

QUESTION 1

1.1 State whether the following are true or false:

1.1.1 2 is a multiple of 4. (1)

1.1.2 4 is a factor of 12. (1)

1.1.3 1 is the identity element of multiplication. (1)

1.1.4 $0 \div 5$ is undefined. (1)

1.1.5 The inverse operation for addition is subtraction. (1)

1.2 Write 16 and 56 as a product of prime factors and determine the LCM. (4)

1.3 Calculate the following. Show all working.

1.3.1 $-6 - 4 - 3$ (2)

1.3.2 $(-6) - (-8)$ (2)

1.3.3 $\sqrt{100} + 5$ (2)

1.3.4 $\sqrt[3]{64} + 3^3$ (2)

1.3.5 $\sqrt{125 - 5^2}$ (2)

1.3.6 $(-3)^3 \div \sqrt[3]{-27}$ (2)

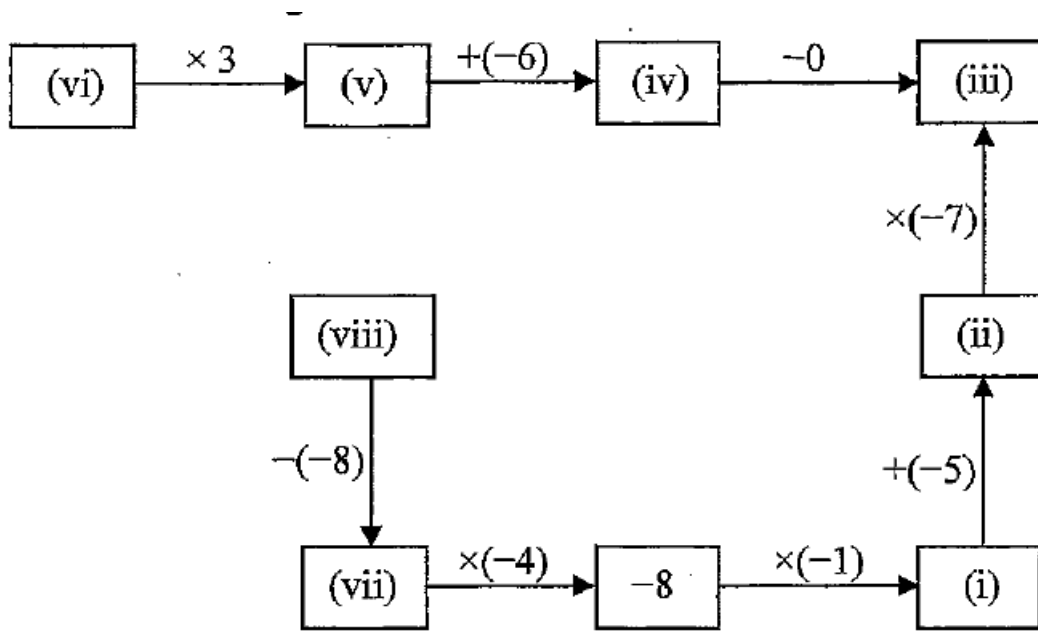
[21]

QUESTION 2

The flow diagram below has eight missing numbers.

List the numbers (i)-(viii) in your answer book.

Now determine the value of each missing number in the diagram.



[8]

QUESTION 3

3.1 Rewrite the following numbers in ascending order, by calculating values where necessary:

$0 ; \sqrt[3]{-125} ; -37 ; \sqrt{144} ; 3^3 ; (-6)^2$ (3)

3.2 Simplify $1 + 3 \times (-2)^2$ (2)

3.3 Subtract -5 from the additive inverse of 6. (2)

3.4 Subtract the largest from the smallest: 18 and -12. (2)

3.5 Determine the product: $(-1)(-1)(-1)(6)(-7)$ (2)

3.6 Determine the quotient if -42 is divided by -7. (2)

[13]

QUESTION 4

Calculate the following, showing all working.

4.1. $\frac{4}{5} + \frac{5}{8}$ (3)

4.2. $6 - 2\frac{3}{4}$ (3)

4.3. $2\frac{3}{4} \times 2\frac{2}{3}$ (3)

4.4. $6\frac{1}{2} \div 2$ (3)

4.5. $\left(1\frac{1}{5}\right)^2$ (2)

[14]**QUESTION 5**

5.1 State whether the following statements are TRUE or FALSE:

5.1.1 x^2y and yx^2 are like terms. (1)

5.1.2 $x + x = x^2$ (1)

5.1.3 The degree of the expression $x^2 + x + 2^3$ is 3. (1)

5.1.4 The coefficient of $\frac{x^2}{3}$ is 3. (1)

5.2 Consider the expression: $-11x^6 - 3x^5 + 4(x^7 - x^2) + 5$

5.2.1 What is the degree of the expression? (1)

5.2.2 How many terms are there in the expression? (1)

5.2.3 What is the coefficient of x^5 ? (1)

[7]

QUESTION 6

If $a = -1$; $b = 2$ and $c = -3$, determine the value of:

6.1 $3abc$ (2)

6.2 $a^2 - 2b^3 + c^2$ (4)

6.3 $a - b - c$ (3)
[9]

QUESTION 7

Simplify the following expressions:

7.1 $x + x + x$ (1)

7.2 $a + b - 2a + 5b$ (2)

7.3 $2a^2b \times 3ab^3$ (2)

7.4 $-(-2x)^4$ (2)

7.5 $\frac{16x^4y^2}{8x^3y}$ (2)

7.6 $\left(\frac{-4x}{16x^2}\right)^3$ (3)

7.7 $\frac{-2pq^2 \times 3p^3q^6}{12p^3q^3}$ (3)

7.8 $\sqrt{25a^6 - 16a^6}$ (3)

7.9 $\sqrt{49x^9}$ (1)

7.10 $\frac{18x^2y + 9xy^2 - 3xy}{3xy}$ (3)

[22]

QUESTION 8

Simplify the following expressions by using the distributive law where necessary:

8.1 $4(a + 2)$ (2)

8.2 $-x(2x - 3)$ (2)

8.3 $3x(x + 3) - 15x$ (3)

8.4 $6 - 2(x + 3) - 3$ (3)

8.5 $a(a - 2m) - 3(a^2 + am)$ (4)

[14]

QUESTION 9

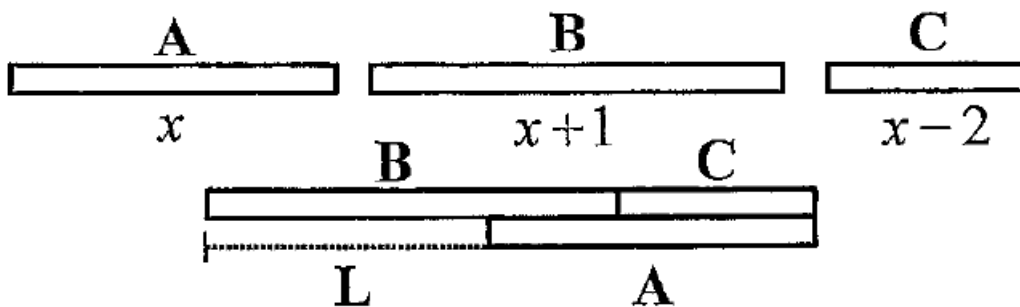
9.1 Solve the following equations.

9.1.1 $7x = -21$ (2)

9.1.2 $3x + 5 = 17$ (3)

9.1.3 $6x + 3 = 3x + 12$ (4)

9.2 Three rectangles have lengths shown below.
Express the length indicated by L in terms of x , and then simplify the expression. (3)



[12]

TOTAL: 120 MARKS