

Mathematics – Grade 8

Total: 70 Marks

June Examination 2023

Time: 1h 25 min

INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions.

1. This question paper consists of SIX questions. Answer ALL the questions.
2. Clearly show ALL calculations and steps clearly.
3. Calculators may be used, unless stated otherwise.
4. Answers only will not necessarily be awarded full marks.
5. If necessary, round off answers to TWO decimal places, unless stated otherwise.
6. Number the answers correctly.
7. Write neatly and legibly.

QUESTION 1 – Multiple Choice

Choose the correct answer. Only write the question number and the correct letter, e.g. 1.1 C

1.1 $a(b+c) = ab+ac$ is an example of the property of whole numbers.

- | | | |
|----------------|-----------------|-----|
| A. Associative | C. Distributive | |
| B. Commutative | D. Reciprocal | (1) |

1.2 The multiplicative inverse of $\frac{1}{4}$ is ...

- | | | |
|-------------------|------------------|-----|
| A. 4 | C. -4 | |
| B. $-\frac{1}{4}$ | D. $\frac{3}{4}$ | (1) |

1.3 75% is equivalent to ...

- | | | |
|-------------------|------------------|-----|
| A. $7\frac{1}{2}$ | C. $\frac{4}{3}$ | |
| B. 0,75 | D. 25% | (1) |

1.4 8 388 608 rounded off to the nearest hundred thousand ...

- | | | |
|--------------|--------------|--|
| A. 8 389 000 | C. 8 000 000 | |
| B. 8 388 610 | D. 8 400 000 | |

1.5 The missing term in the number pattern is ...

3 ; 6 ; ____ ; 24 ; 48

- | | | |
|-------|-------|-----|
| A. 9 | C. 12 | |
| B. 10 | D. 18 | (1) |

1.6 $\sqrt{100} - \sqrt{36} = \dots$

- | | | |
|------|-------|--|
| A. 4 | C. 16 | |
| B. 8 | D. 32 | |

1.7 $4+3\times 2-1=$

- | | | |
|-------|-------|-----|
| A. 13 | C. 7 | |
| B. 9 | D. 15 | (1) |

1.8 A dripping tap loses 10 ml of water every minute. How much water is wasted in 1,5 hours?

- | | | |
|-----------|----------|--|
| A. 0,15 l | C. 1,5 l | |
| B. 9 l | D. 0,9 l | |

1.9 $2^3 \times 2^2 =$

- | | | |
|----------|----------|-----|
| A. 2^6 | C. 2^5 | |
| B. 4^5 | D. 4^6 | (1) |

1.10 The time on a watch is 10:30 a.m. What will the time be after $2\frac{3}{4}$ hours?

- | | | |
|---------------|---------------|-----|
| A. 1:15 p.m. | C. 12:45 p.m. | |
| B. 12:15 p.m. | D. 1:45 p.m. | (1) |

[10]

QUESTION 2

2.1 Consider the numbers **180** and **378**

2.1.1 Write each number as a product of its prime factors. (2)

2.1.2 Hence, determine the HCF of the two numbers. (2)

2.2

2.2.1 There are 96 pupils in Grade 8. The pupils come to school as follows: walk, by bus, by car in the ratio 3 : 5 : 16. How many pupils use the bus to get to school? (3)

2.2.2 Matthew began peeling 44 potatoes at a rate of 3 potatoes per minute. Four minutes later Charles joined him and peeled at a rate of 5 potatoes per minute. When they are finished, how many potatoes did Charles peel? (3)

2.3 Decrease 384 in the ratio 3:4 (2)

2.4 Simplify: $300\text{ m} : 2,4\text{ km}$ (2)

2.5 A shop sells a bicycle for R499,00 and add 15% VAT. How much will you pay? (2)

[16]

QUESTION 3

3.1 Arrange the following sets of numbers in ascending order

3.1.1 125 022 ; 125 220 ; 122 502 ; 125 020 ; 125 205 (2)

3.1.2 $\sqrt{49}$; $\sqrt[3]{-27}$; $(\sqrt{5})^2$; $-\sqrt[3]{8}$; 1^4 (2)

3.2 Calculate the following (without the use of a calculator). Show ALL your working.

3.2.1 $3 + (-8) - (-9) + 4$ (2)

3.2.2 $\sqrt[3]{-125} + 5^0$ (3)

3.2.3 $-7 \times -9 + 56 \div (-8)$ (3)

3.2.4 $6^2 - 2^3 \times 4 - \sqrt{25}$ (3)

[15]

QUESTION 4

4.1

4.1.1 Complete the following table:

Fraction	Decimal Fraction	Percentage	Ratio
$\frac{3}{5}$	(a)	(b)	3 : 5
(c)	0,375	37,5%	(d)

(2)

4.2 Calculate (without the use of a calculator). Show ALL your steps.

4.2.1 $1\frac{3}{5} + 2\frac{1}{3} - \frac{5}{6}$ (3)

4.2.2 $\sqrt{2\frac{7}{9}} \times \frac{3}{7}$ (3)

4.2.3 $\frac{7}{8} + 0,125$ (2)

[10]**QUESTION 5**

5.1 Write down the next term in the patterns below:

5.1.1 11 ; 8 ; 5 ; 2 ; ... (1)

5.1.2 4 ; 1 ; 6 ; 2 ; 8 ; 4 ; 10 ; 8 ; ... (1)

5.2 The shapes below have been formed using sticks.

Shape 1



Shape 2



Shape 3



Shape 4



The table below shows the number of sticks used to build the different shapes in the pattern.

Shape	1	2	3	4	5	6
Number of sticks	4	<i>a</i>	20	28	<i>b</i>	44

5.2.1 Write down the values of *a* and *b*. (2)

5.2.2 Describe the rule for the pattern in words. (2)

5.2.3 Write down the formula for the n^{th} term, in the form $T_n = \dots$ (2)

5.2.4 Which shape will have 84 sticks? Show calculations. (2)

[10]

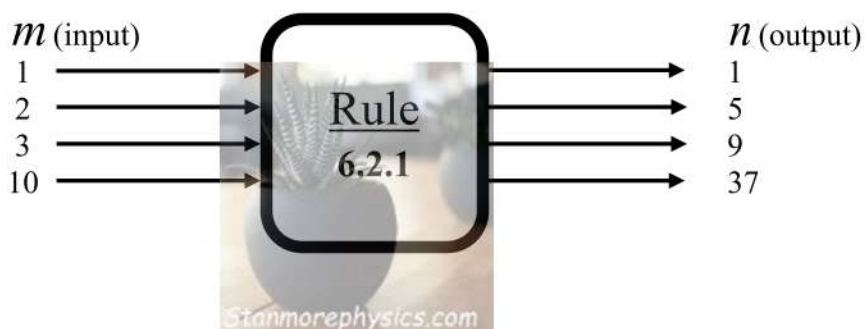
QUESTION 6

6.1 Determine the missing input and output values in the flow diagram.



(2)

6.2 Write down the rule for the flow diagram below.



(2)

6.3 Each function below A to E, is represented in a table. Match the function with the table. Write down only the correct letter with the question number.

A: $y = 3x - 1$ **B:** $y = -x + 2$ **C:** $y = 3x^2$ **D:** $y = \frac{16}{x}$ **E:** $y = 2^x$

6.3.1

x	-2	-1	0	1	2
y	12	3	0	3	12

(1)

6.3.2

x	-2	-1	1	2	4
y	-8	-16	16	8	4

(1)

6.3.3

x	1	2	3	4	5
y	2	4	8	16	32

(1)

6.3.4

x	-2	-1	0	1	2
y	-7	-4	-1	2	5

(1)

6.3.5

x	-2	-1	0	1	2
y	4	3	2	1	0

(1)

[9]

TOTAL: {70}