



education

Department of
Education
FREE STATE PROVINCE

GRADE 8

MATHEMATICS JUNE MOCK EXAM

MARKS: 60

NAME: _____ **GRADE 8 CLASS:** _____

Questions	1	2	3	4	5	6
Marks	10	12	11	10	10	7
Marks obtained						

INFORMATION AND INSTRUCTIONS

1. Question 1 MCQ with one mark each total of 10 marks.
2. Question 2 to 6: Short and Long questions for 50 marks.
3. Answer ALL questions
4. Clearly show All calculations, diagrams, graphs, etc that you used to determine the answers.
5. Answers ONLY will NOT necessarily be awarded full marks unless stated otherwise.
6. You may use an approved scientific calculator (non-programmable and non-graphical) unless stated otherwise.

QUESTION 1

1.1 Which number is the additive identity ? (1)

A. -1

B. 1

C. 0

D. 1

1.2 Which factors are prime factor of 12? (1)

A. $2; 6$

B. $3; 4$

C. $2; 3$

D. $6; 9$

1.3 In the expression: $\frac{1}{2}x + \frac{2}{3}x^3 + \frac{3}{4} + \frac{4}{5}x^2$ Which term is the constant? (1)

A. $\frac{1}{2}$

B. $\frac{2}{3}$

C. $\frac{3}{4}$

D. $\frac{4}{5}$

1.4 Calculate: $-6 + 3 + (-9) + 14$ (1)

A. -2

B. 20

C. 14

D. 2

1.5 Simplify : $\sqrt{\frac{16}{9} + \frac{9}{9}}$ (1)

A. $\frac{4}{3}$

B. $\frac{5}{3}$

C. $\frac{5}{9}$

D. $\frac{4}{9}$

1.6 What is the value of: 0,2 expressed as a percentage? (1)

- A. 2%
- B. 20%
- C. 0,2%
- D. 0,02%

1.7 What is the value of $(2)^3 + (-4)^2$? (1)

- A. 24
- B. -8
- C. -24
- D. 8

1.8 Consider the geometric pattern below : (1)

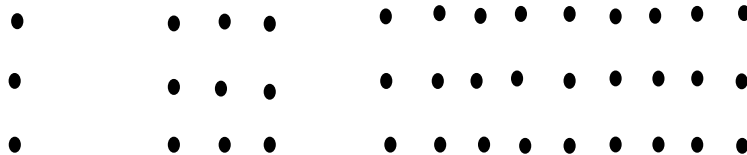


Fig. 1

Fig. 2

Fig. 3

If the pattern continues growing in this specific geometric arrangement up to n^{th} figure. Which of the following is an algebraically rule.

- A. $T_n = 3^{n-2}$
- B. $T_n = 3n$
- C. $T_n = 3^n$
- D. $T_n = 3^{2n}$

1.9 A taxi company charges a fixed booking fee plus a cost per kilometer travelled. (1)

A passenger travels 10 km and pays a total of R75. The booking fee is R15. Which equation can be used to determine the cost per kilometer, and what is the cost per kilometer?

- A. $10x + 15 = 75$, $x = 6$
- B. $10x - 15 = 75$, $x = 9$
- C. $15x + 10 = 75$, $x = 4$
- D. $15x - 10 = 75$, $x = 5$

1.10 A city is installing solar street lights along a highway. (1)

- ✓ In Week 1, there are 17 lights installed.
- ✓ In Week 2, there are 20 lights installed.
- ✓ In Week 3, there are 23 lights installed.

How many lights will be there in Week 16?

- A. $L_{16} = 62$
- B. $L_{16} = 52$
- C. $L_{16} = 34$
- D. $L_{16} = 44$

[10]

QUESTION 2

2.1 Consider $100 = 2^2 \times 5^2$ and 200

2.1.1 What will be prime factors of 200 (2)

2.1.2 Hence, find HCF of 100 and 200 factors. (1)

2.2 John and Anna, share a total profit of R315 in the ratio 3 : 4.

Calculate how much money Anna will receive ? (3)

2.3 A local supermarket sells tomatoes for:

- ✓ 3 kg bag costs R70
- ✓ 2 kg bag costs R50

Calculate the price per kg for each option, which option is expensive. (3)

2.4 Mr Khumalo invests R2000 in a savings account at a financial institution that offers a simple interest rate of 4% per annum. Calculate the total value of her investment over a period of 3 years. (3)

[12]

QUESTION 3

3.1 Simplify:

3.1.1 $\frac{M^x}{M^y}$ (1)

3.1.2 $(M^x)^y$ (1)

3.2 Simplify: $\sqrt[3]{-125} + \left(\frac{3}{2} \times \frac{4}{6}\right) - (2 \div 0,2)$ (4)

3.3 Simplify expression using laws exponents: $\frac{(x^2y^3)^3}{x^4y^5}$ (3)

3.4 A scientist estimates that a water sample contains approximately 56 70 000 microorganisms. Express this number of bacteria in scientific notation. (2)

[11]

QUESTION 4

4.1 Simplify : $3x^3 - 3x^2 + 4x^3 + 4x^2$ (2)

4.2 Given: $x + x^6 + \frac{x^3}{2} - 2 - 4x^2$

4.2.1 Write down the value of the constant term. (1)

4.2.2 State the coefficient of x^3 (1)

4.2.3 What is the degree of polynomial. (1)

4.3 Simplify: $4(-x^2 + x - 2) - 4x$ (2)

4.4 Simplify: $\frac{18x^3y^4 + 6xy^3 - 12x^2y}{3xy^2}$ (3)

[10]

QUESTION 5

5.1 Consider : 7; 11; 15; 19;

5.1.1 Write down next two terms. (2)

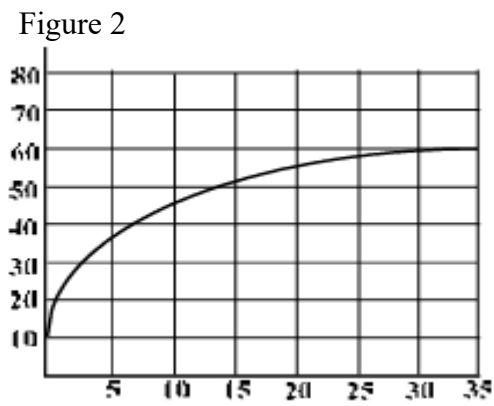
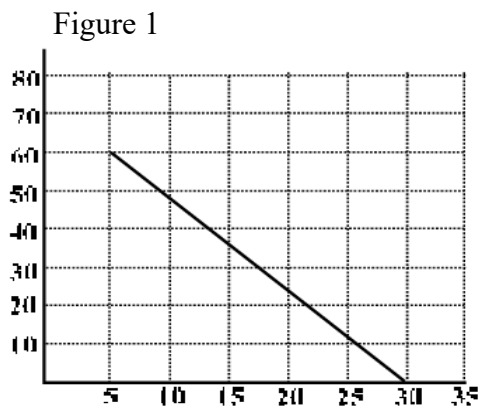
5.1.2 Find the general rule for the pattern (T_n) (2)

5.2 Solve for x : $3 - 3x = -15$ (2)

5.3 When a certain number is divided by 4 and then decreased by 3, the result is equal to the same number divided by 2 and then decreased by 9. Set up an algebraic equation to describe the problem and solve the equation. (4)

QUESTION 6

6.1 Consider the following graphs:



6.1.1 Which graph is non-linear. (1)

6.1.2 What is the maximum value of graph in figure 2 (1)

6.1.3 Which graph is decreasing (1)

6.2 Given $y = x + 2$

6.2.1 Copy and Complete the table

x	0	1	2	3	4
y	2		4		6

(2)

6.2.2 Plot points on a Cartesian plan using the table results and join the point. (2)