

Mathematics Book One - Chapter One Assessment

Student examination paper

Modules 1-5 | 20 questions | 30 marks | 60 minutes



Name: _____

Class: _____

Date: _____

Examination instructions

- Answer every question and show complete working for written responses.
- Do not view the marking guide until the examination is complete.
- Check conditions, signs and final conclusions before submitting.

Curriculum and mark balance

1	Binomial theorem	4	6
2	Polynomial division	4	6
3	Rational expressions	4	6
4	Identities and proofs	4	6
5	Inequalities	4	6

Section A: Objective questions - 15 marks

Choose the correct answer, then complete the true-or-false items.

1. Find the coefficient of x^3 in $(x + 4)^4$. [1 marks]

- | | |
|--------|-------|
| A) 256 | B) 20 |
| C) 16 | D) 12 |

2. Find the coefficient of x^1 in $(x + 4)^4$. [1 marks]

- | | |
|--------|--------|
| A) 16 | B) 260 |
| C) 256 | D) 252 |

3. What is the remainder when $P(x) = x^2 + x + 2$ is divided by $x - 2$? [1 marks]

- | | |
|-------|-------|
| A) -8 | B) 10 |
| C) 8 | D) 5 |

4. What is the remainder when $P(x) = x^2 - x - 10$ is divided by $x - 3$? [1 marks]

- | | |
|-------|-------|
| A) 4 | B) -1 |
| C) -4 | D) -6 |

5. For $x \neq 6$, evaluate $(x^2 - 36)/(x - 6)$ at $x = 11$. [1 marks]

- | | |
|-------|-------|
| A) 5 | B) 85 |
| C) 17 | D) 18 |

6. For $x \neq 7$, evaluate $(x^2 - 49)/(x - 7)$ at $x = 9$. [1 marks]

- | | |
|-------|-------|
| A) 2 | B) 32 |
| C) 16 | D) 17 |

7. Use an identity to evaluate $(9+6)^2 - (9-6)^2$ without expanding both squares separately. [1 marks]

- | | |
|--------|--------|
| A) 108 | B) 60 |
| C) 216 | D) 220 |

8. Use an identity to evaluate $(4+6)^2 - (4-6)^2$ without expanding both squares separately. [1 marks]

- | | |
|-------|--------|
| A) 48 | B) 40 |
| C) 96 | D) 100 |

9. For $t > 0$, find the minimum value of $t + 25/t$. [1 marks]

- | | |
|-------|-------|
| A) 5 | B) 25 |
| C) 10 | D) 12 |

10. For $t > 0$, find the minimum value of $t + 81/t$. [1 marks]

A) 9

B) 81

C) 18

D) 20

11. True or false: Both exponents in a selected term are equal to r . [1 marks]

☐ True ☐ False

12. True or false: The remainder may have the same degree as the divisor. [1 marks]

☐ True ☐ False

13. True or false: Division is performed by dividing numerators and denominators separately without inversion. [1 marks]

☐ True ☐ False

14. True or false: Only constant terms need to match. [1 marks]

☐ True ☐ False

15. True or false: A square can be negative when its inside is negative. [1 marks]

☐ True ☐ False

Section B: Written solutions - 15 marks

Show a complete, justified method. Each question is worth 3 marks.

16. Find the coefficient of x^3 in $(x + 5)^4$. Show a complete method. [3 marks]

17. What is the remainder when $P(x) = x^2 - x - 4$ is divided by $x - 3$? Show a complete method. [3 marks]

18. For $x \neq 5$, evaluate $(x^2 - 25)/(x - 5)$ at $x = 12$. Show a complete method. [3 marks]

19. Use an identity to evaluate $(5+6)^2 - (5-6)^2$ without expanding both squares separately. Show a complete method. [3 marks]

20. For $t > 0$, find the minimum value of $t + 36/t$. Show a complete method. [3 marks]

Mark summary and follow-up

27-30	Mastery	Begin Chapter Two with an extension challenge.
23-26	Secure	Review and retry two missed questions.
18-22	Developing	Redo the weakest module sheets before retesting.
0-17	Needs support	Return to instruction and worked examples with a teacher.

Strongest module: _____

Module to revisit: _____

Retest date: _____