

Name: _____

Date: _____

Score: _____ / 15

Growing Patterns & Rules

Multiplying patterns, shrinking patterns, and writing a rule as an expression.

Add pattern same amount each time	Multiply pattern × the same each time	Rule use n for the position	Example $P = 4 \times n$
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Section A — Multiplying Patterns

Write the next term and the rule.

- 2, 6, 18, ____ (what is the rule?)
- 1, 5, 25, ____ (what is the rule?)
- 3, 6, 12, ____ (what is the rule?)
- 4, 12, 36, ____ (what is the rule?)

Section B — Shrinking Patterns

Write the next term.

- 100, 93, 86, ____
- 84, 75, 66, ____
- 120, 105, 90, ____
- 75, 69, 63, ____

Section C — Write the Rule

Use n.

- Perimeter of a square with side n. Write the rule.
- Cost of n books at \$6 each. Write the rule.
- Total legs on n chairs (4 legs each). Write the rule.
- Using $P = 4n$, find P when $n = 9$.

Section D — Thinking It Through

Explain your reasoning.

- Squares in a growing pattern: 3, 5, 7, 9. What is term 10?
- What is the rule for that pattern?
- Will 40 ever appear in that pattern? Explain.

Growing Patterns & Rules — Answer Key

For marking. Accept equivalent correct forms.

Section A — Multiplying Patterns

1. 54 - multiply by 3

2. 125 - multiply by 5

3. 24 - multiply by 2

4. 108 - multiply by 3

Section B — Shrinking Patterns

5. 79

6. 57

7. 75

8. 57

Section C — Write the Rule

9. $P = 4 \times n$

10. $C = 6 \times n$

11. $L = 4 \times n$

12. 36

Section D — Thinking It Through

13. 21

14. start at 3, add 2 each time

15. No - every term is odd
