

Pattern Table Power

Use rules to connect inputs and outputs.

GRADE 5 • MA.5.AR.3.2

MA.5.AR.3.2 "Given a rule for a numerical pattern, use a two-column table to record the inputs and outputs."

NAME _____

DATE _____

PRACTICE: PATTERN RULES

A rule tells how to change each input into an output. Write the inputs in one column and use the same rule each time to fill the output column.

WORKED EXAMPLE

Rule: Multiply each input by 7, then add 4. Complete the output column.

Input | Output 2 | ____ 5 | ____ 8 |

1. Start with the input 5.
2. 5 times 7 = 35.
3. $35 + 4 = 39$.
4. Write 39 as the output for 5.

Answer: 2 -> 18; 5 -> 39; 8 -> 60

PRACTICE 6 problems

1 Rule: Add 6. Complete the output column.
Input | Output 3 | ____ 6 | ____ 10 | ____

ANSWER _____

2 Rule: Subtract 3. Complete the output column. Input | Output 13 | ____ 15 | ____ 16 |

ANSWER _____

3 Rule: Multiply by 9. Complete the output column. Input | Output 3 | ____ 6 | ____ 10 | ____

ANSWER _____

4 Rule: Multiply by 6. Complete the output column. Input | Output 11 | ____ 13 | ____ 14 |

ANSWER _____

5 Rule: Subtract 9. Complete the output column. Input | Output 20 | ____ 25 | ____ 30 |

ANSWER _____

6 Rule: Add 12. Complete the input column. Input | Output ____ | 25 ____ | 31 ____ | 40

ANSWER _____

APPLY IT Show your work

- 1** APPLY: In a video game, each level gives a player 12 points. Make a two-column table showing the total points for 9 levels, 11 levels, and 13 levels.

WORK SPACE

ANSWER _____

- 2** APPLY: Maya starts with 11 virtual coins. Each completed quest adds 13 coins. Make a two-column table showing her total coins after 3 quests, 6 quests, and 9 quests.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

CHALLENGE: Rule: Multiply the input by 11, then subtract 14. Complete both columns. Input | Output 12
| ___ 15 | ___ 21 | ___ ___ | 250

_____	_____
_____	_____

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Rule: Add 6. Complete the output column. Input Output 3 ___ 6 ___ 10 ___	3 -> 9; 6 -> 12; 10 -> 16
2	Rule: Subtract 3. Complete the output column. Input Output 13 ___ 15 ___ 16 ___	13 -> 10; 15 -> 12; 16 -> 13
3	Rule: Multiply by 9. Complete the output column. Input Output 3 ___ 6 ___ 10 ___	3 -> 27; 6 -> 54; 10 -> 90
4	Rule: Multiply by 6. Complete the output column. Input Output 11 ___ 13 ___ 14 ___	11 -> 66; 13 -> 78; 14 -> 84
5	Rule: Subtract 9. Complete the output column. Input Output 20 ___ 25 ___ 30 ___	20 -> 11; 25 -> 16; 30 -> 21
6	Rule: Add 12. Complete the input column. Input Output ___ 25 ___ 31 ___ 40	13 -> 25; 19 -> 31; 28 -> 40

PART 2 • APPLY IT

- 9 -> 108; 11 -> 132; 13 -> 156** Multiply each number of levels by 12 to find the total points.
- 3 -> 50; 6 -> 89; 9 -> 128** Multiply the number of quests by 13, then add the 11 coins Maya started with.

CHALLENGE

12 -> 118; 15 -> 151; 21 -> 217; 24 -> 250

Accept answers written in a correctly labeled two-column table or with input-output arrows. For the challenge's last row, students may find the input by adding 14 to 250, then dividing by 11.