

## PATTERNS & LOGIC

Reasoning Lab • Rules, Machines, and Patterns

Objective: *Find the rule, continue the pattern, and run the subtraction machine.*

**DO THIS** Find the rule, continue each pattern, and run the subtraction machine.

**FIND THE RULE** A pattern changes by the same amount each step.

**EXAMPLE** What is the rule?

**9, 8, 7, 6, 5**

Rule: subtract 1 each time.

**CONTINUE THE PATTERN** Write the next two numbers and the rule.

1

**9, 7, 5, ,**

Rule: \_\_\_\_

2

**9, 8, 7, ,**

Rule: \_\_\_\_

3

**9, 7, 5, ,**

Rule: \_\_\_\_

**SUBTRACTION MACHINE** Subtract 1 from each IN. Fill the OUT column.

IN	OUT (-1)
2	
6	
7	
9	

Every number that goes IN comes OUT 1 smaller. The rule is the same every time.

**ODD ONE OUT** Circle the number that does not fit the rule (subtract 2).

**10, 8, 6, 5, 4, 2** — it breaks the pattern.

The rule was:  subtract the same amount  different each time

TEACHER EDITION

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Objective: *Find the rule, continue the pattern, and run the subtraction machine.*

**DO THIS** Find the rule, continue each pattern, and run the subtraction machine.

**FIND THE RULE** A pattern changes by the same amount each step.

**EXAMPLE** What is the rule?

9, 8, 7, 6, 5

Rule: subtract 1 each time.

**CONTINUE THE PATTERN** Write the next two numbers and the rule.

1

9, 7, 5, 3, 1

Rule: subtract 2

2

9, 8, 7, 6, 5

Rule: subtract 1

3

9, 7, 5, 3, 1

Rule: subtract 2

**SUBTRACTION MACHINE** Subtract 1 from each IN. Fill the OUT column.

IN	OUT (-1)
2	1
6	5
7	6
9	8

Every number that goes IN comes OUT 1 smaller. The rule is the same every time.

**ODD ONE OUT** Circle the number that does not fit the rule (subtract 2).

10, 8, 6, 5, 4, 2 — it breaks the pattern.

**TEACHER NOTES** Answer key & guidance

Answers: constant-difference patterns  
Common error: Assuming the rule changes between steps

Strategy: Find the constant difference between terms  
Prompt: "How much smaller is each number than the one before?"

The rule was:  subtract the same amount  different each time

