

## 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?

**99, 97, 95, 93, 91**

Rule: subtract 2 each time.

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

1

**100, 97, 94, ,**

Rule: \_\_\_\_

2

**96, 91, 86, ,**

Rule: \_\_\_\_

3

**99, 89, 79, ,**

Rule: \_\_\_\_

**SUBTRACTION MACHINE** Subtract 2 from each IN. Fill the OUT column.

IN	OUT (-2)
5	
33	
54	
94	

Every number that goes IN comes OUT 2 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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**FIND THE RULE** A pattern changes by the same amount each step.

**EXAMPLE** What is the rule?

**99, 97, 95, 93, 91**

Rule: subtract 2 each time.

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

**1**  
**100, 97, 94, 91, 88**

Rule: subtract 3

**2**  
**96, 91, 86, 81, 76**

Rule: subtract 5

**3**  
**99, 89, 79, 69, 59**

Rule: subtract 10

**SUBTRACTION MACHINE** Subtract 2 from each IN. Fill the OUT column.

IN	OUT (-2)
5	3
33	31
54	52
94	92

Every number that goes IN comes OUT 2 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