

## 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, 96, 93, 90, 87**

Rule: subtract 3 each time.

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

1

**99, 96, 93, ,**

Rule: \_\_\_\_

2

**100, 95, 90, ,**

Rule: \_\_\_\_

3

**100, 98, 96, ,**

Rule: \_\_\_\_

**SUBTRACTION MACHINE** Subtract 10 from each IN. Fill the OUT column.

IN	OUT (-10)
17	
38	
47	
92	

Every number that goes IN comes OUT 10 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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**EXAMPLE** What is the rule?

**99, 96, 93, 90, 87**

Rule: subtract 3 each time.

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

1

**99, 96, 93, 90, 87**

Rule: subtract 3

2

**100, 95, 90, 85, 80**

Rule: subtract 5

3

**100, 98, 96, 94, 92**

Rule: subtract 2

**SUBTRACTION MACHINE** Subtract 10 from each IN. Fill the OUT column.

IN	OUT (-10)
17	7
38	28
47	37
92	82

Every number that goes IN comes OUT 10 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