

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?

15, 10, 5, 0, -5

Rule: subtract 5 each time.

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

1

14, 4, -6, ,

Rule: ____

2

18, 16, 14, ,

Rule: ____

3

19, 16, 13, ,

Rule: ____

SUBTRACTION MACHINE Subtract 5 from each IN. Fill the OUT column.

IN	OUT (-5)
9	
11	
14	
19	

Every number that goes IN comes OUT 5 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.*

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EXAMPLE What is the rule?

15, 10, 5, 0, -5

Rule: subtract 5 each time.

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

1

14, 4, -6, -16, -26

Rule: subtract 10

2

18, 16, 14, 12, 10

Rule: subtract 2

3

19, 16, 13, 10, 7

Rule: subtract 3

SUBTRACTION MACHINE Subtract 5 from each IN. Fill the OUT column.

IN	OUT (-5)
9	4
11	6
14	9
19	14

Every number that goes IN comes OUT 5 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