

Name: _____

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

16, 11, 6, ,

Rule: ____

2

11, 1, -9, ,

Rule: ____

3

13, 3, -7, ,

Rule: ____

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

IN	OUT (-5)
7	
9	
10	
12	

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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DO THIS Find the rule, continue each 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

16, 11, 6, 1, -4

Rule: subtract 5

2

11, 1, -9, -19, -29

Rule: subtract 10

3

13, 3, -7, -17, -27

Rule: subtract 10

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

IN	OUT (-5)
7	2
9	4
10	5
12	7

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