

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?

17, 14, 11, 8, 5

Rule: subtract 3 each time.

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

1

15, 5, -5, ,

Rule: ____

2

17, 12, 7, ,

Rule: ____

3

16, 6, -4, ,

Rule: ____

SUBTRACTION MACHINE Subtract 3 from each IN. Fill the OUT column.

IN	OUT (-3)
8	
12	
16	
17	

Every number that goes IN comes OUT 3 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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FIND THE RULE A pattern changes by the same amount each step.

EXAMPLE What is the rule?

17, 14, 11, 8, 5

Rule: subtract 3 each time.

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

1
15, 5, -5, -15, -25

Rule: subtract 10

2
17, 12, 7, 2, -3

Rule: subtract 5

3
16, 6, -4, -14, -24

Rule: subtract 10

SUBTRACTION MACHINE Subtract 3 from each IN. Fill the OUT column.

IN	OUT (-3)
8	5
12	9
16	13
17	14

Every number that goes IN comes OUT 3 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

