FAITH THINKERS
Traditional Arithmetic & Logic

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?

9, 7, 5, 3, 1

Rule: subtract 2 each time.

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

1. **10, 9, 8, ___, ___**
   Rule: ____

2. **10, 9, 8, ___, ___**
   Rule: ____

3. **10, 9, 8, ___, ___**
   Rule: ____

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

IN	OUT (−2)
3	
4	
7	
8	

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

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TEACHER EDITION

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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?

9, 7, 5, 3, 1

Rule: subtract 2 each time.

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

1. **10, 9, 8, 7, 6**
   Rule: subtract 1
2. **10, 9, 8, 7, 6**
   Rule: subtract 1
3. **10, 9, 8, 7, 6**
   Rule: subtract 1

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

IN	OUT (−2)
3	1
4	2
7	5
8	6

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