In and Out Boxes: Complete Function-Machine Rule Tables

Original tasks 1, 2, 3 / complete keys

Task 1

Rule: subtract 3. Complete the outputs for inputs 8, 11, 15, and 20.

Answer: 5, 8, 12, 17.

Reason: Apply subtract 3 to each input: 8 minus 3 equals 5; 11 minus 3 equals 8; 15 minus 3 equals 12; 20 minus 3 equals 17.

Check: Add 3 to each output: 5 plus 3 equals 8; 8 plus 3 equals 11; 12 plus 3 equals 15; 17 plus 3 equals 20.

Task 2

Rule: multiply by 2. Complete the outputs for inputs 4, 7, 9, and 13.

Answer: 8, 14, 18, 26.

Reason: Multiply each input by 2: 4 times 2 equals 8; 7 times 2 equals 14; 9 times 2 equals 18; 13 times 2 equals 26.

Check: Divide each output by 2: 8 divided by 2 equals 4; 14 divided by 2 equals 7; 18 divided by 2 equals 9; 26 divided by 2 equals 13.

Task 3

Rule: divide by 4. Complete the outputs for inputs 12, 20, 28, and 36.

Answer: 3, 5, 7, 9.

Reason: Divide each input by 4: 12 divided by 4 equals 3; 20 divided by 4 equals 5; 28 divided by 4 equals 7; 36 divided by 4 equals 9.

Check: Multiply each output by 4: 3 times 4 equals 12; 5 times 4 equals 20; 7 times 4 equals 28; 9 times 4 equals 36.

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Original tasks 4 / complete keys

Task 4

Rule: add 6. A table shows input 5 with output 11 already completed. Complete the outputs for inputs 2, 9, and 14.

Answer: 8, 15, 20.

Reason: The completed row confirms add 6 because 5 plus 6 equals 11. Apply add 6 to the blanks: 2 plus 6 equals 8; 9 plus 6 equals 15; 14 plus 6 equals 20.

Check: Subtract 6 from each output: 8 minus 6 equals 2; 15 minus 6 equals 9; 20 minus 6 equals 14. Also confirm the given row: 11 minus 6 equals 5.

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Source rubric / reflection

- [ ] Applies the stated rule to every input without changing the operation.
- [ ] Places each output in the same row as its matching input.
- [ ] Uses correct arithmetic for all four outputs.
- [ ] Shows a reverse check on at least one row.
- [ ] Writes digits legibly using a consistent baseline-to-midline height; valid alternative digit styles are accepted if unambiguous.

Reflection: What did you check, what did you change, and what will you try next?