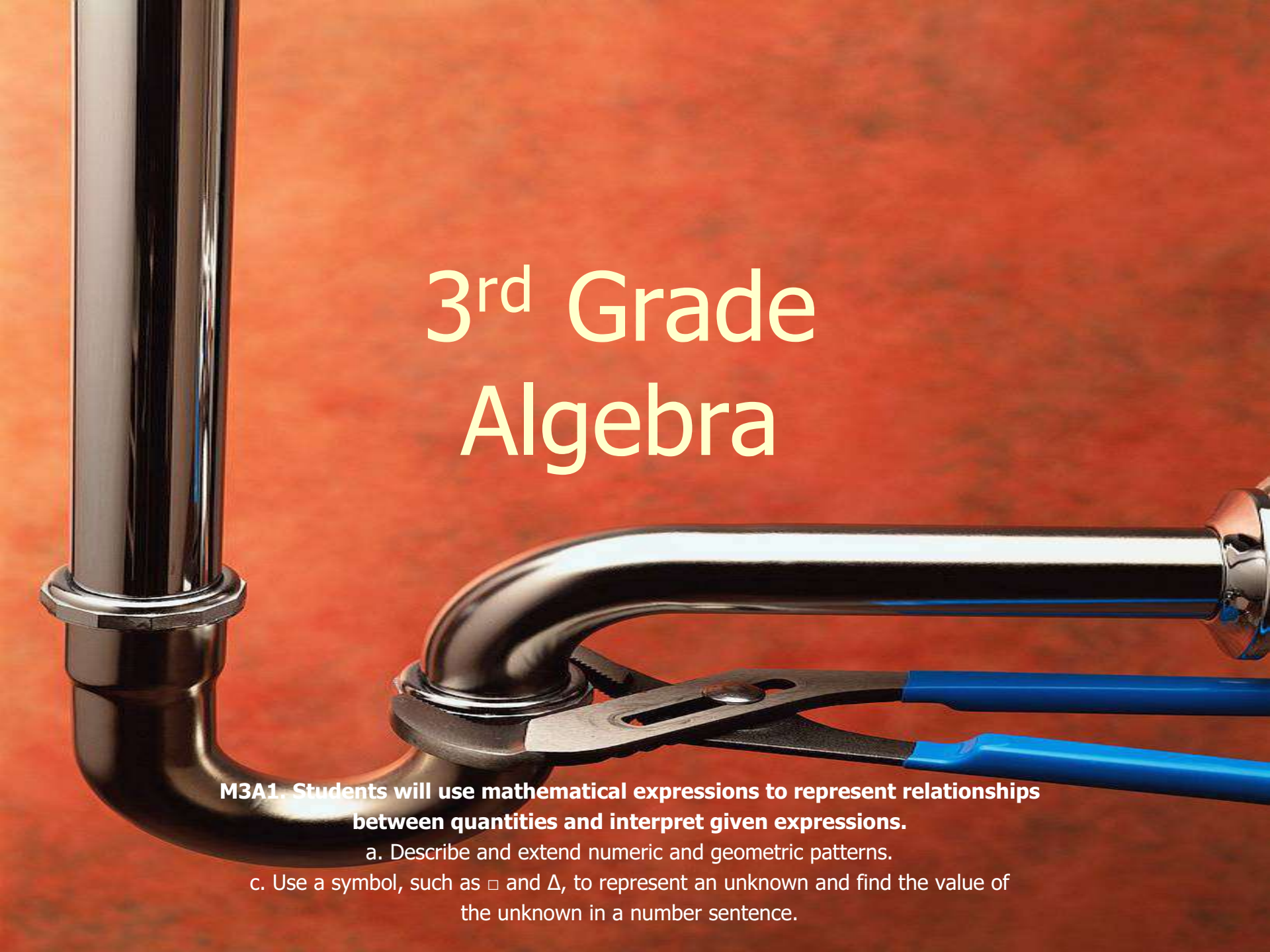


3rd Grade Algebra

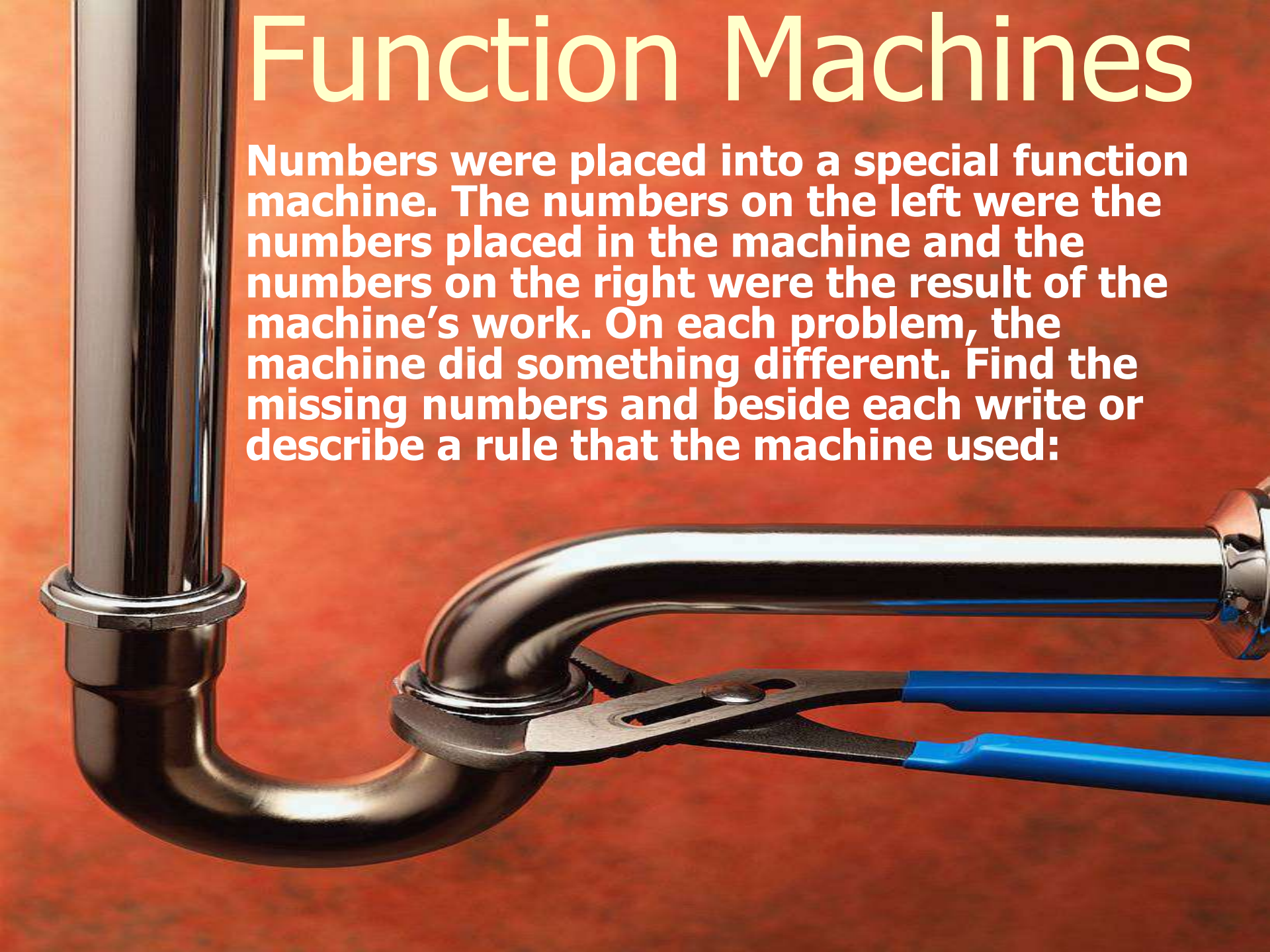
M3A1. Students will use mathematical expressions to represent relationships between quantities and interpret given expressions.

a. Describe and extend numeric and geometric patterns.

c. Use a symbol, such as □ and Δ, to represent an unknown and find the value of the unknown in a number sentence.

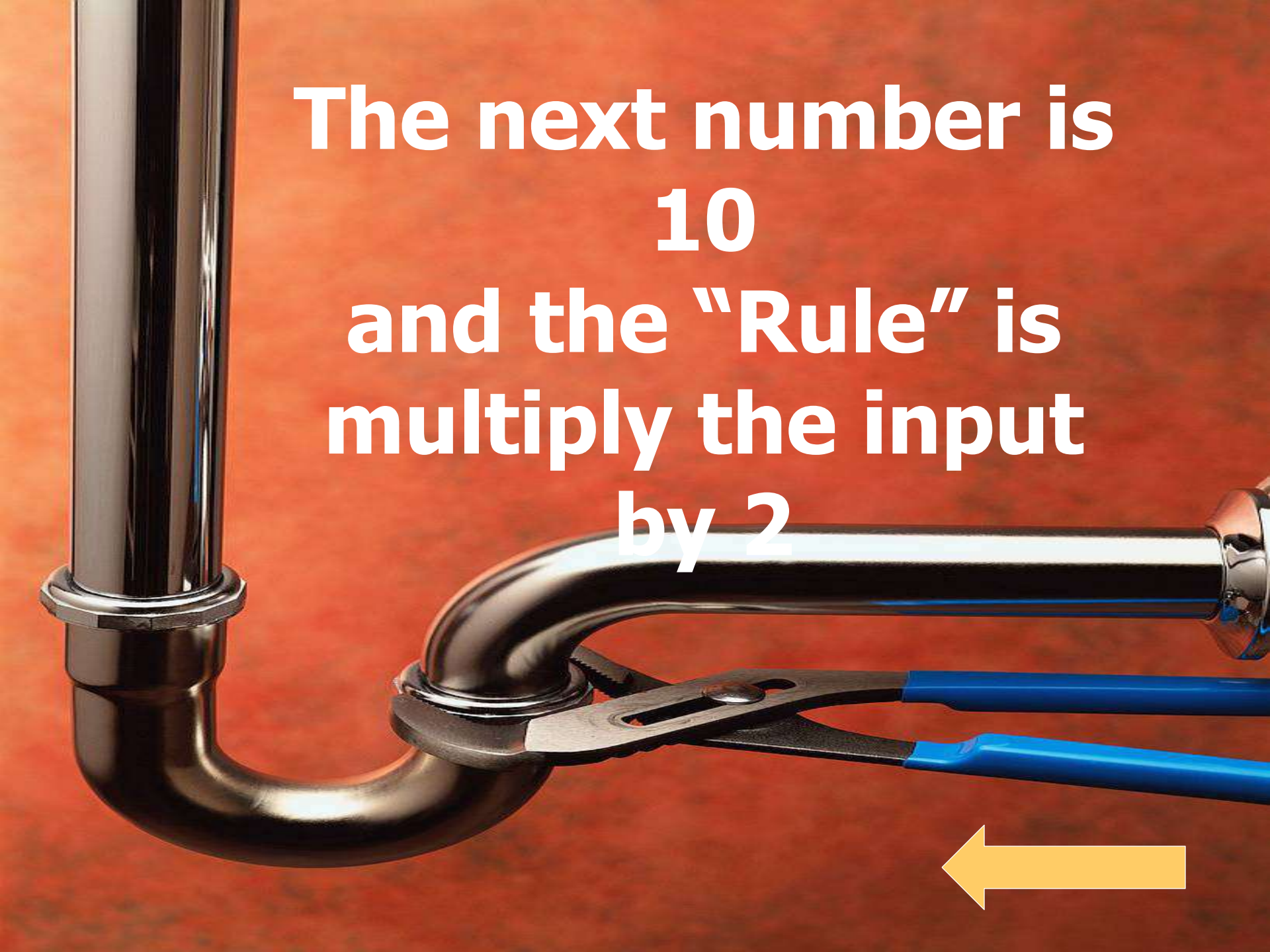
Function Machines

Numbers were placed into a special function machine. The numbers on the left were the numbers placed in the machine and the numbers on the right were the result of the machine's work. On each problem, the machine did something different. Find the missing numbers and beside each write or describe a rule that the machine used:



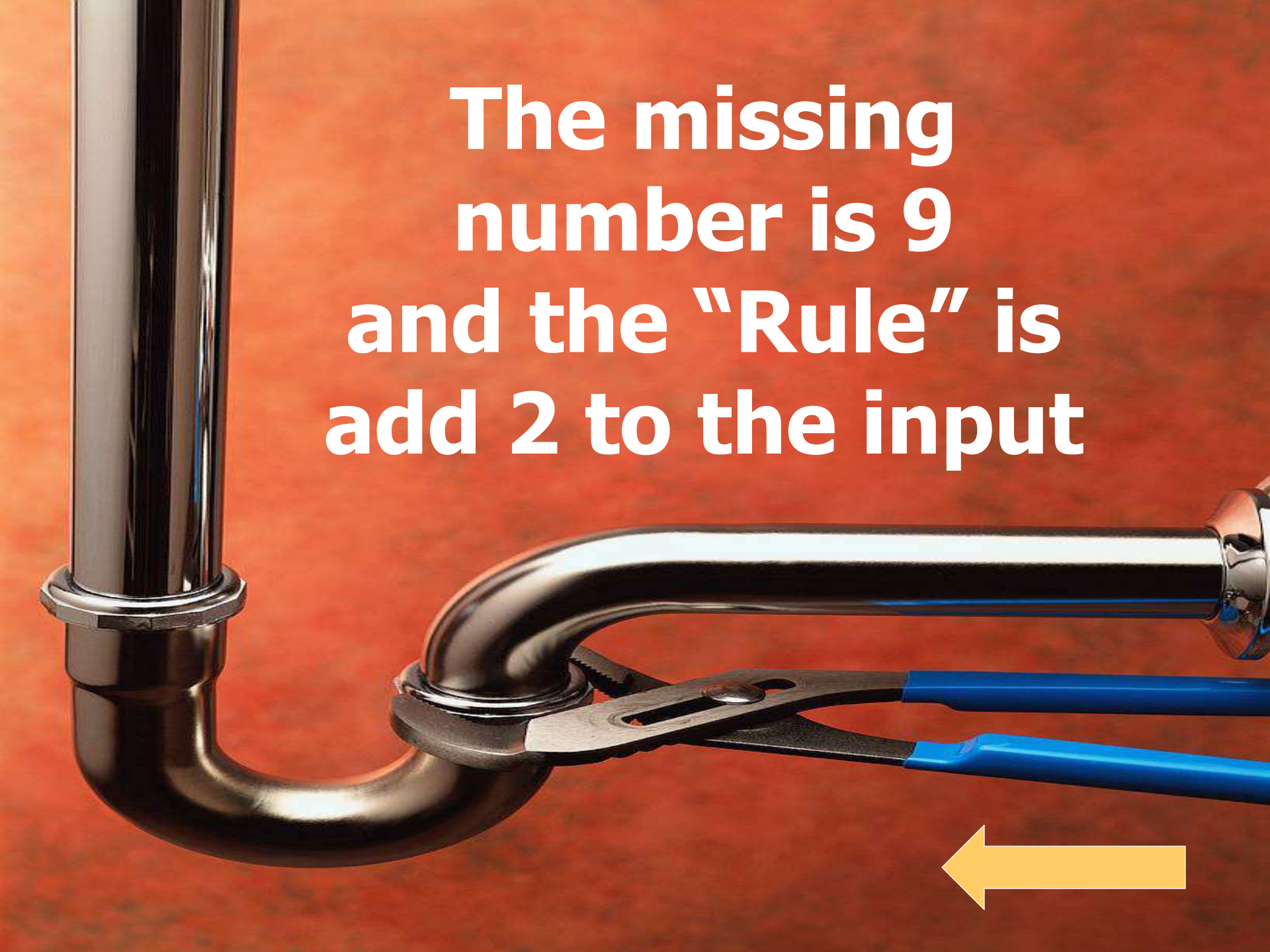
IN	OUT
2	4
3	6
4	8
5	???

What is the next number in this function table? What is the "rule" for this table?


The next number is
10
and the "Rule" is
multiply the input
by 2

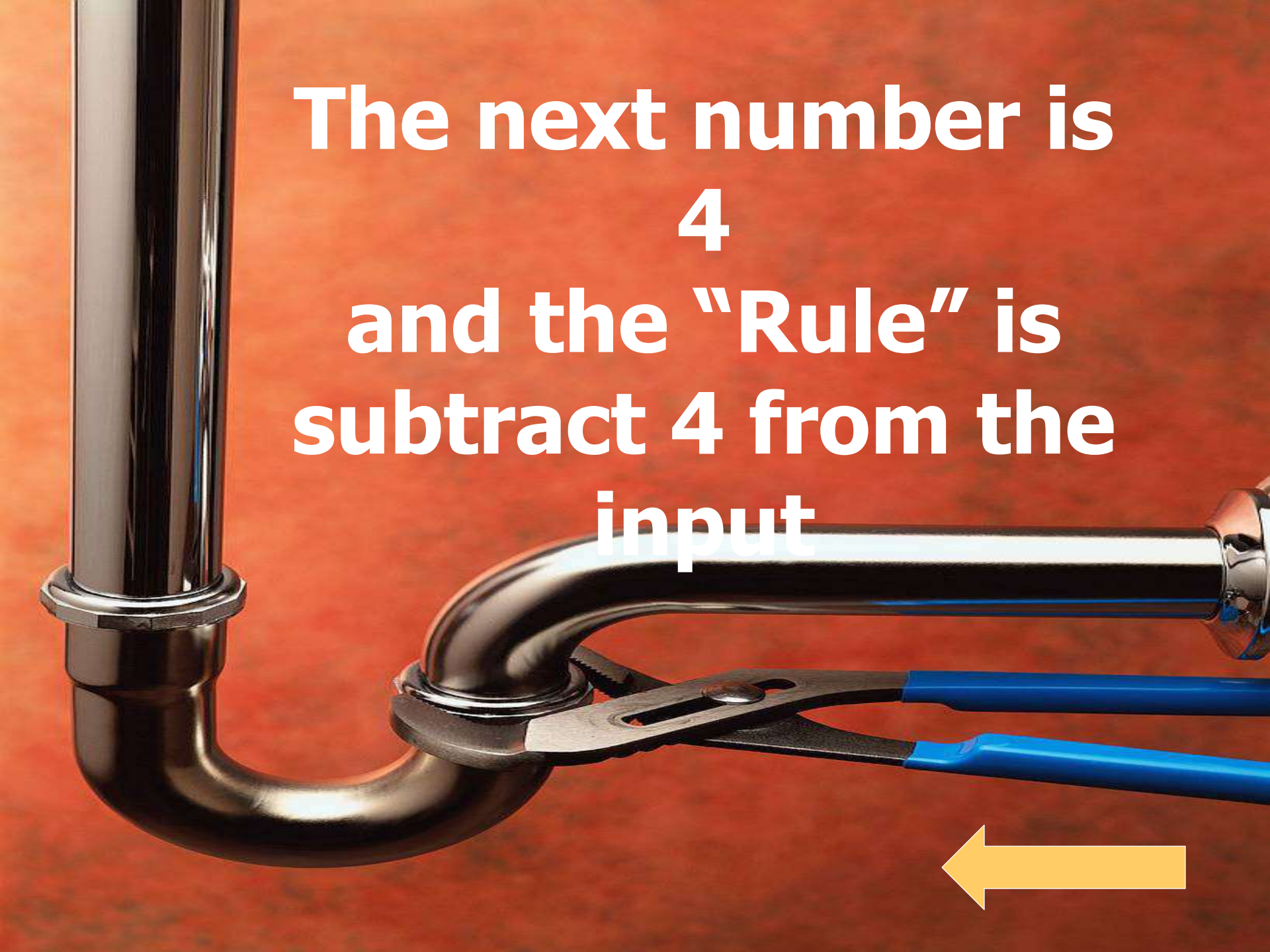
IN	OUT
1	3
3	5
6	8
???	11

What is the next number in this function table? What is the "rule" for this table?


The missing
number is 9
and the “Rule” is
add 2 to the input

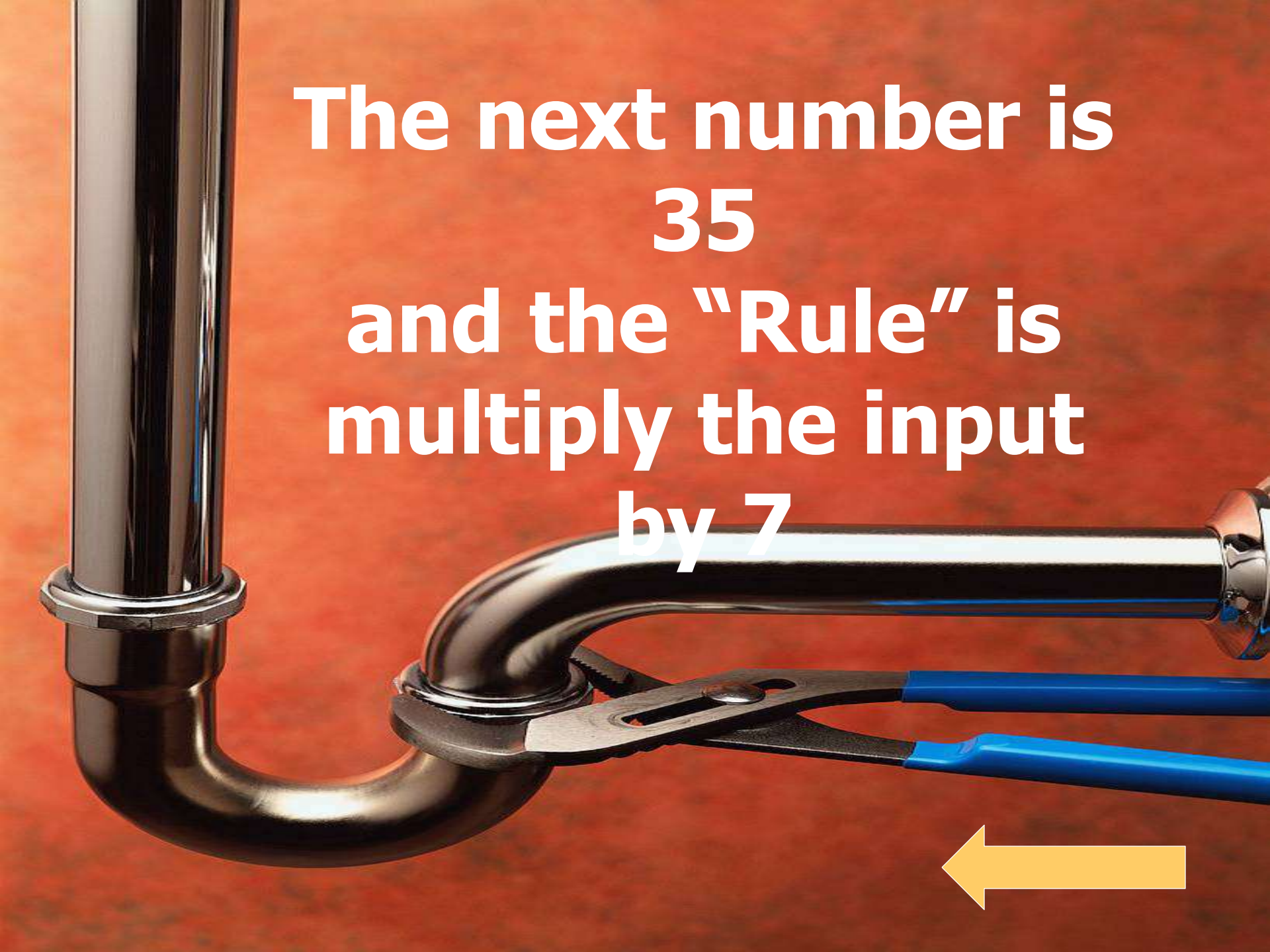
IN	OUT
5	1
10	6
12	8
???	0

What is the next number in this function table? What is the "rule" for this table?


The next number is
4
and the "Rule" is
subtract 4 from the
input

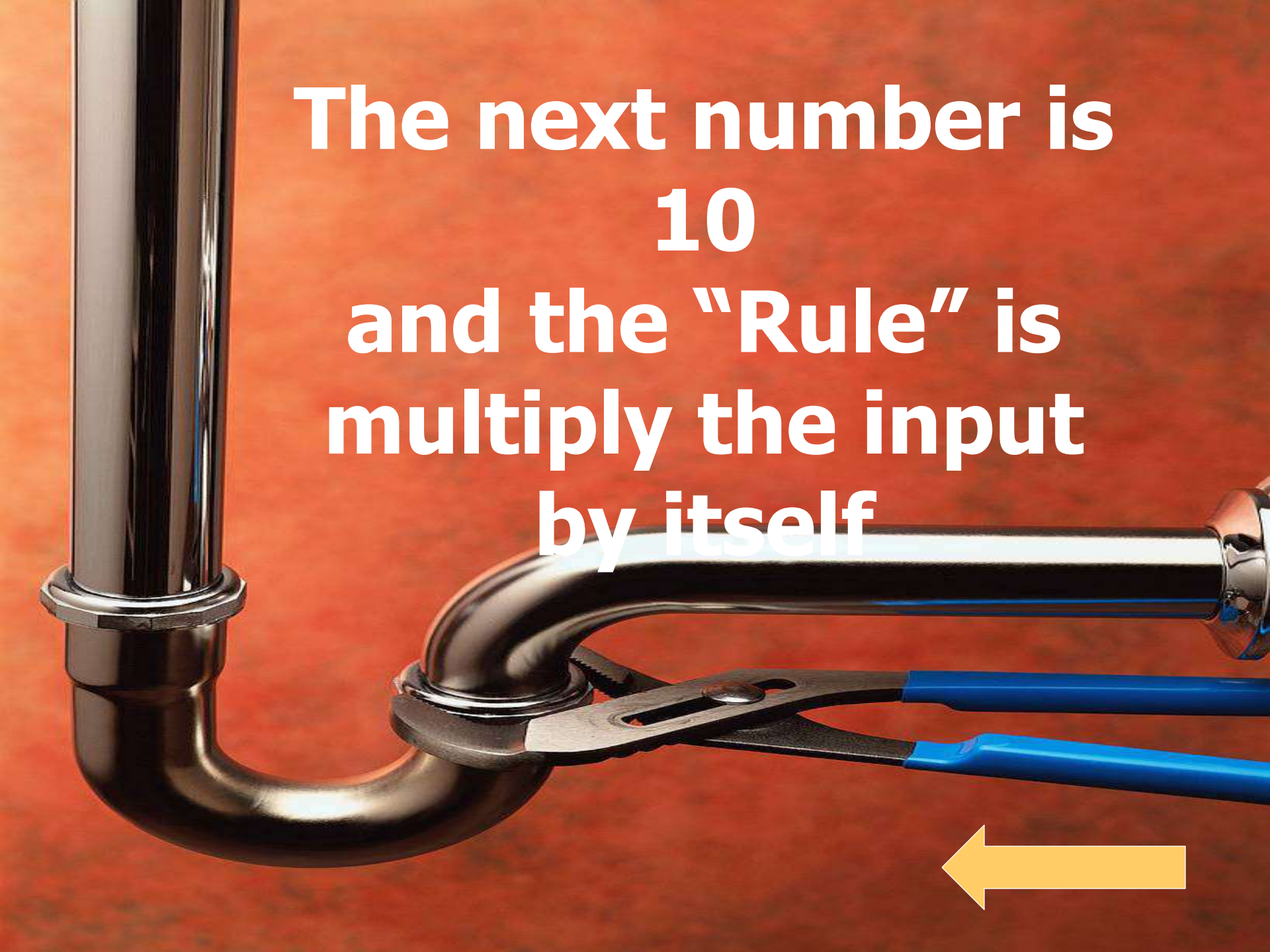
IN	OUT
7	49
3	21
10	70
5	???

What is the next number in this function table? What is the "rule" for this table?


The next number is
35
and the "Rule" is
multiply the input
by 7

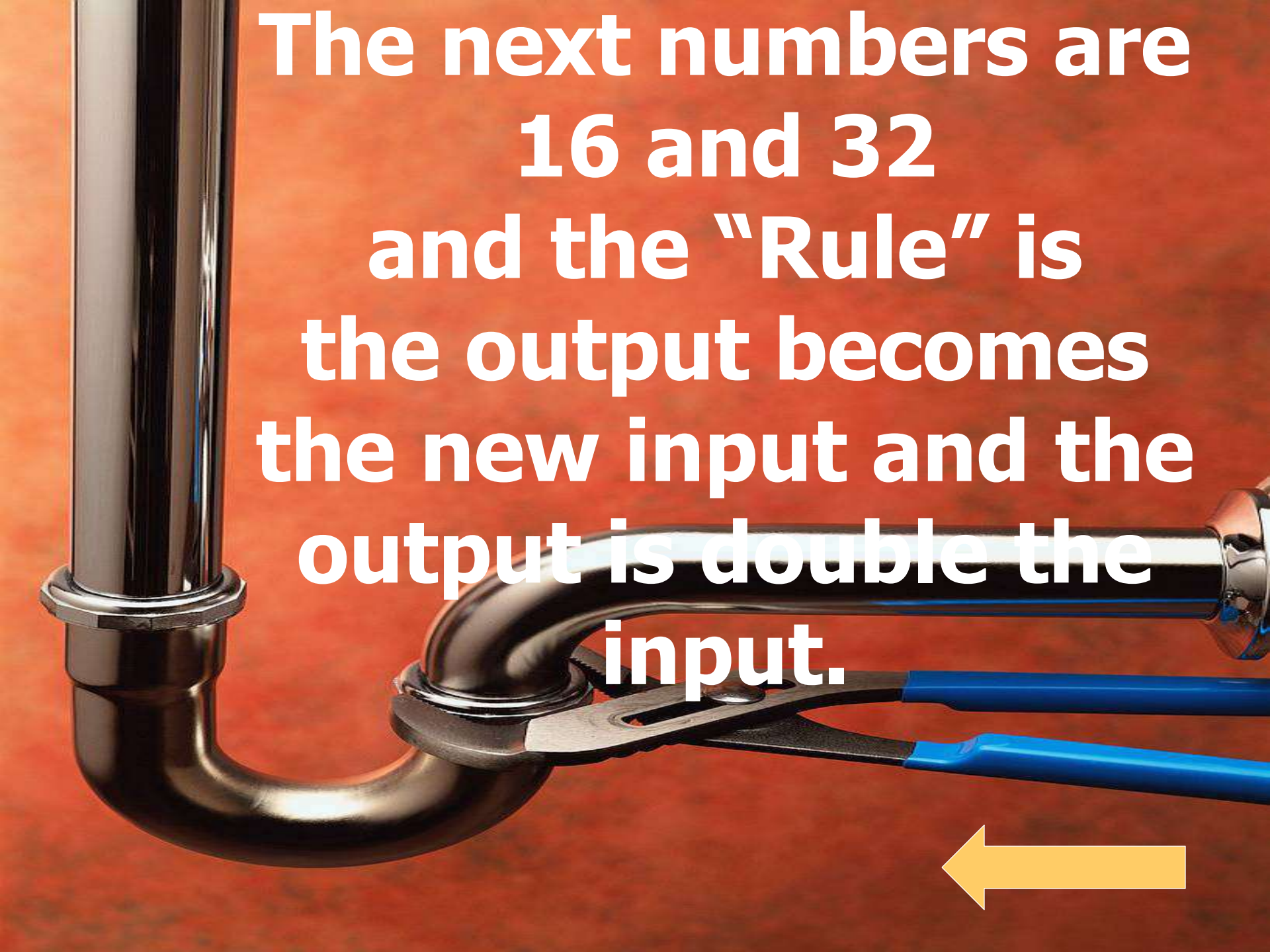
IN	OUT
2	4
3	9
4	16
???	100

What is the next number in this function table? What is the "rule" for this table?


The next number is
10
and the "Rule" is
multiply the input
by itself

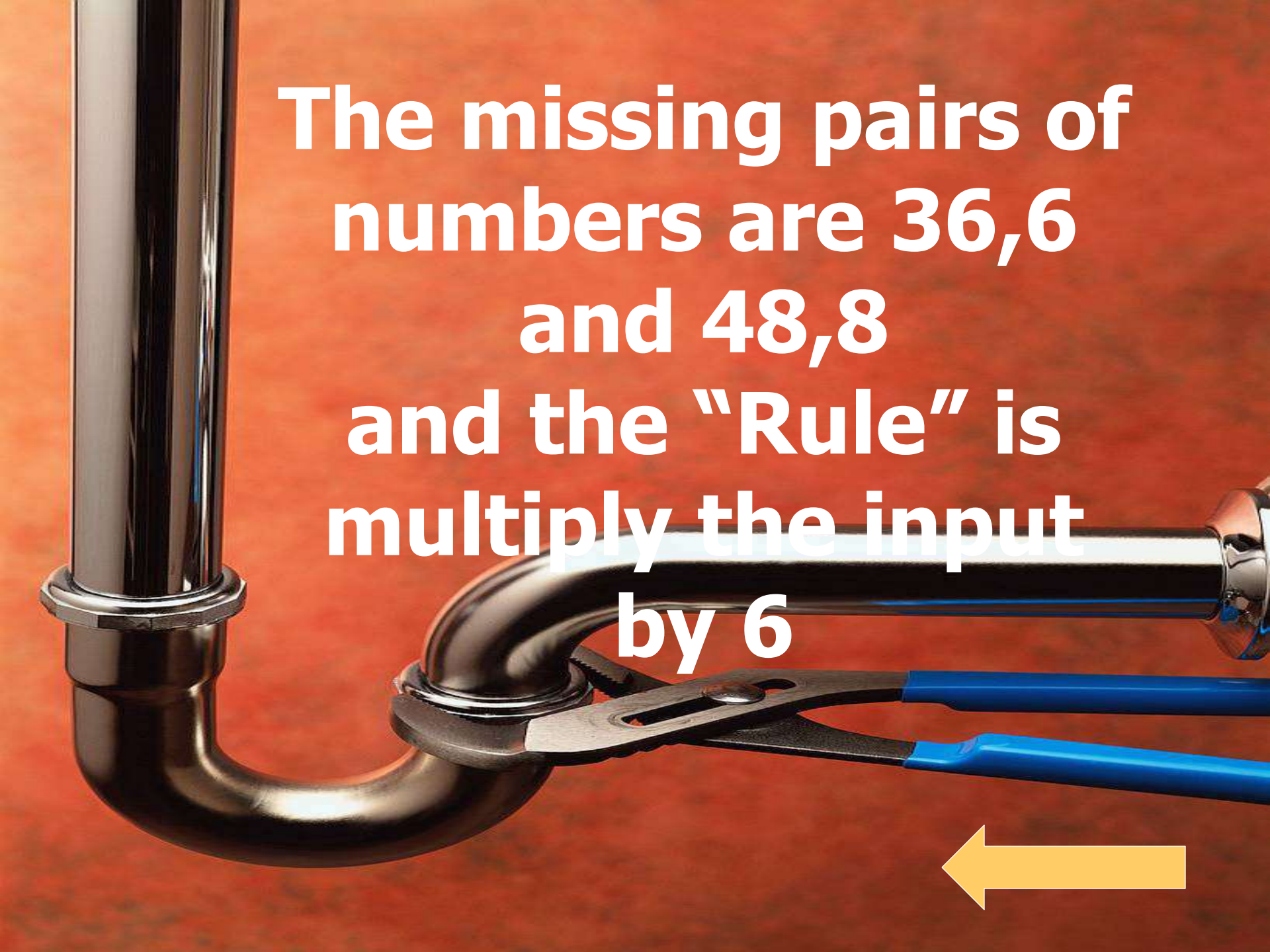
IN	OUT
2	4
4	8
8	16
???	???

What is the next number in this function table? What is the "rule" for this table?


The next numbers are
16 and 32
and the "Rule" is
the output becomes
the new input and the
output is double the
input.

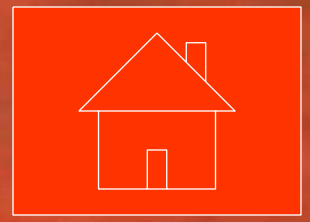
IN	OUT
30	5
???	???
42	7
???	???

What are the missing numbers in this function table? What is the "rule" for this table?


The missing pairs of numbers are 36,6 and 48,8
and the "Rule" is multiply the input by 6


Practice Problems

End Game



Practice Problems

Click on a Number to Begin

Function Tables	Equations
1	11
2	12
3	13
4	14
5	15
6	16
7	17
8	18
9	19
10	20

Question 1

- Olivia is planting a row of flowers. She is planting the same number of flowers in each row. How many flowers in total are planted in 7 rows?

Number of Rows	4	5	6	7	8
Total Flowers	28	35	42	?	56

Question 2

Number of Minutes	3	4	5	6	7	8
Number of Multiplication Problems	36	?	60	72	84	96

- Ms. Wormley's class has been practicing their multiplication facts. The chart above shows how many multiplication facts that her students can do in different amounts of minutes. How many multiplication problems can the class do in 4 minutes?

48

50

Question 3

- If the pattern continues, how many fruit will be on the 5^{th} row?

15

13

Question 4

- What is the rule for the numbers in the sequence below?

54, 51, 48, 45, 42

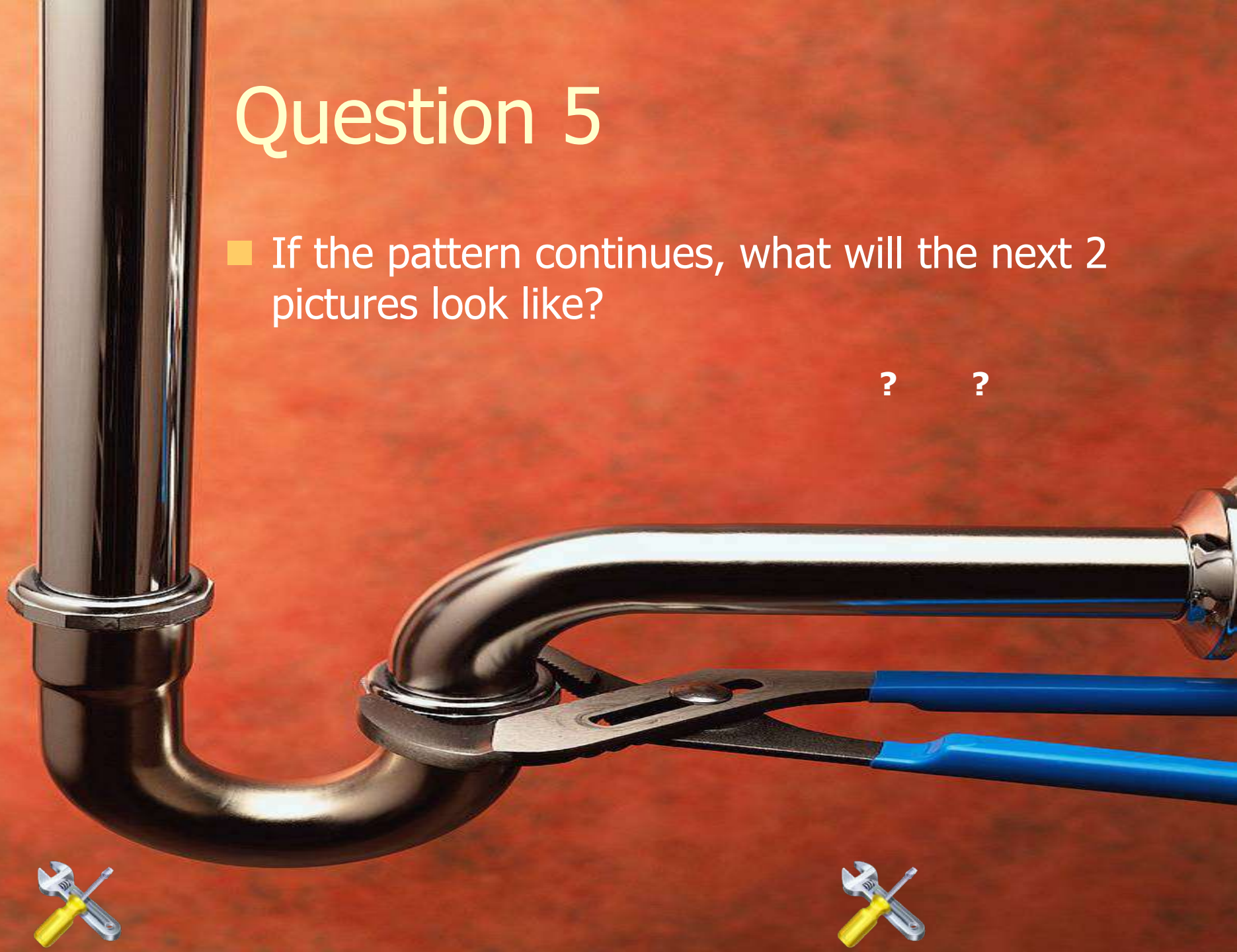
Each number in the sequence is 3 less than the previous number.

Each number in the sequence is a multiple of 3.

Question 5

- If the pattern continues, what will the next 2 pictures look like?

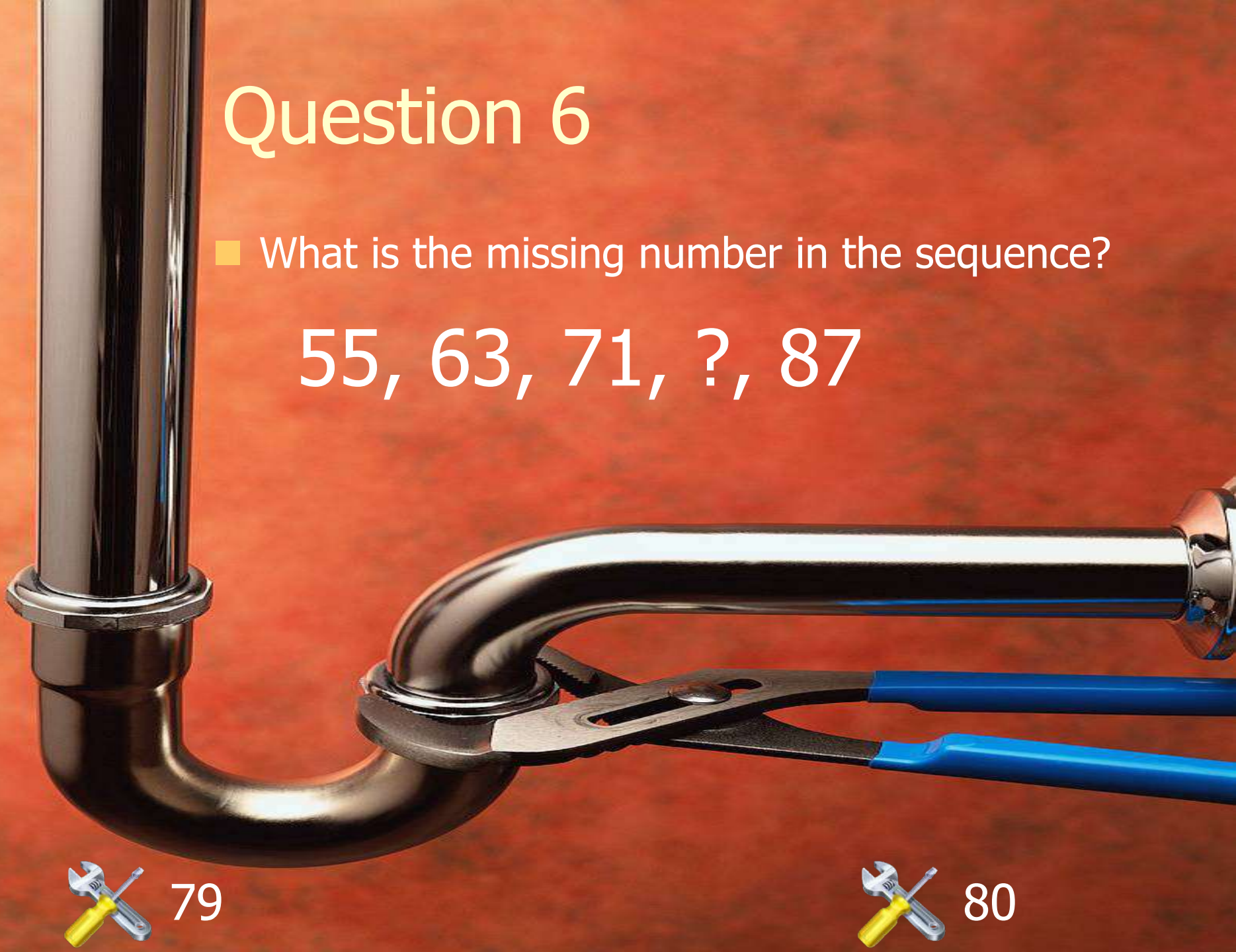
? ?



Question 6

- What is the missing number in the sequence?

55, 63, 71, ?, 87

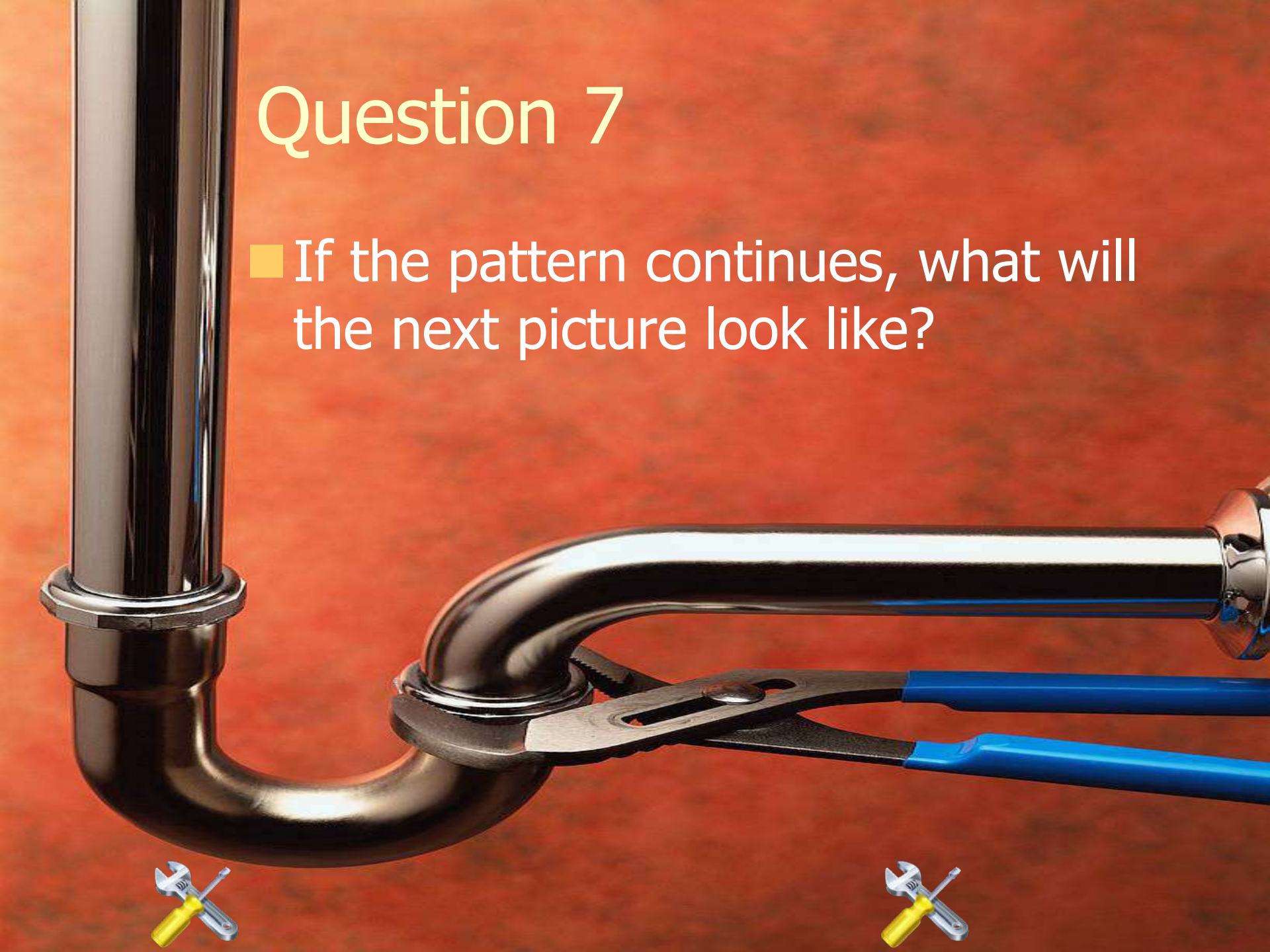


79

80

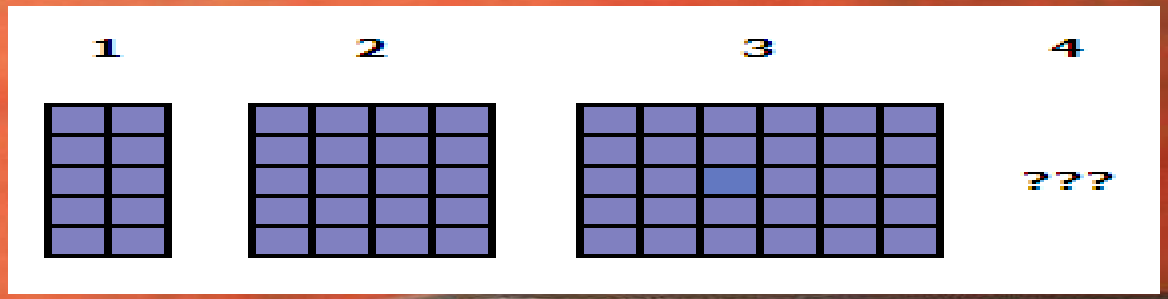
Question 7

- If the pattern continues, what will the next picture look like?



Question 8

- If the pattern continues, how many squares will be in the 4th figure?



35

40

Question 9

- What is the rule for this sequence of numbers?

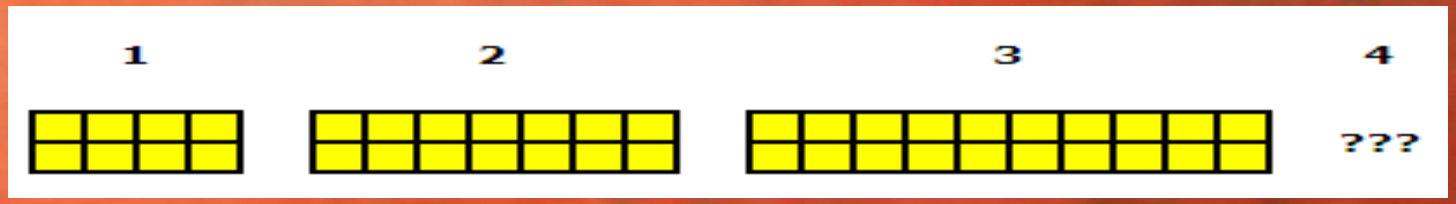
745, 715, 685, 655, 625

Each number in the sequence is 20 less than the previous number.

Each number in the sequence is 30 less than the previous number.

Question 10

- If the pattern continues, how many squares will be in the 4th figure?



26

24

Question 11

- Which number makes this number sentence true?

14 + ▲ =20

6

8

Question 12

- Which number makes this number sentence true?

10 + ★ + 31 = 55

15

14

Question 13

- Which number makes this number sentence true?

$7 = \blacktriangle + 10$

77

70

Question 14

- Which number makes this number sentence true?

$$55 - 7 - ? = 21$$

27

17

Question 15

- Which number makes this number sentence true?

6 = ✖ + 2▲

12

7

Question 16

- Which number makes this number sentence true?

$$18 = ? \times 2$$

6

9

Question 17

- Which number makes this number sentence true?

 - 3 = 7 + 3

13

10

Question 18

- Which number makes this number sentence true?

48 ___ 8 = ?

6

8

Question 19

- Which number makes the number sentence true?

$$34 + ? + 16 = 56$$

10

6

Question 20

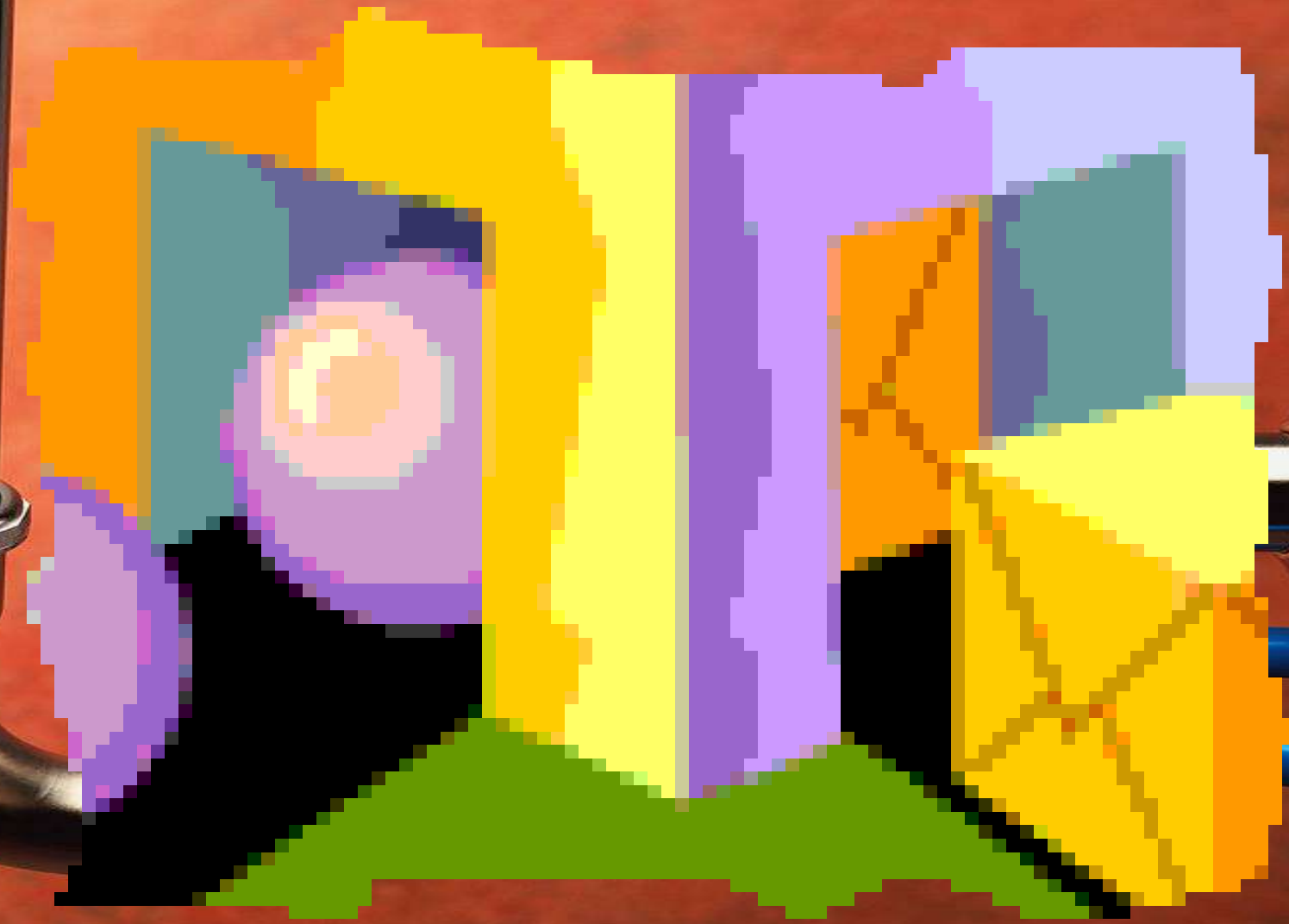
- Which number makes this number sentence true?

$$52 - 6 - ? = 31$$

15

14

That’s Right!!!



Oops! Wrong Answer