Year 3 maths: Number machines (Easy)

Maths · Patterns and algebra
Level: Easy

Student: _____ Date: _____

Instructions
- There are 10 questions. Read each one carefully.
- Write your answers on this paper. Use the space under a question to work it out.
- A grown-up can read a question aloud — that's fine.
- The answers are at the end. Check them together when you have finished.

Questions

1. The machine's rule is + 8. 5 goes in. What comes out?

Answer: ☐

Working:

2. How many is half a dozen?

Circle one answer.

○ **A** 12 ○ **B** 2 ○ **C** 6 ○ **D** 5

3. The machine's rule is × 2. 16 comes out. What number went in?

Circle one answer.

○ **A** 14 ○ **B** 18 ○ **C** 32 ○ **D** 8

4. Each In number goes through the same rule to make its Out number. What number goes in the empty box?

Answer: ☐

In	3	4	5	6
Out	9	12	15	?

Working:

5. The machine does × 5. 35 comes out. What number went in?

Answer: ☐

IN ? → ×5 → OUT 35

Working:

6. The machine does + 9. 20 comes out. What number went in?

Answer: ☐

IN ? → +9 → OUT 20

Working:

7. Each Out number is the In number multiplied by itself. What number goes in the empty box?

Answer: ☐

In	1	2	3	4
Out	1	4	9	?

Working:

8. Kai thinks of a number and doubles it. He gets 14. What number did he think of?

Circle one answer.

○ **A** 28 ○ **B** 12 ○ **C** 7 ○ **D** 6

9. What number must go in the box? 6 × □ = 30

Circle one answer.

○ **A** 24 ○ **B** 180 ○ **C** 6 ○ **D** 5

10. 2 × □ + 1 = 9. First take off the 1: 2 × □ = 8. What number goes in the box?

Circle one answer.

○ **A** 16 ○ **B** 8 ○ **C** 4 ○ **D** 5

Answer key

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1. 13

5 + 8 = 13.

2. C — 6

A dozen is 12. Half of 12 is 6.

3. D — 8

Undo × 2 by halving: 16 ÷ 2 = 8. Check: 8 × 2 = 16.

4. 18

The rule is × 3: 3 × 3 = 9, 4 × 3 = 12, 5 × 3 = 15. So 6 × 3 = 18.

5. 7

Undo × 5 by dividing: 35 ÷ 5 = 7. Check: 7 × 5 = 35.

6. 11

Undo + 9 by taking away 9: 20 − 9 = 11. Check: 11 + 9 = 20.

7. 16

4 × 4 = 16. Check the others: 1 × 1 = 1, 2 × 2 = 4, 3 × 3 = 9.

8. C — 7

Undo doubling by halving: 14 ÷ 2 = 7. Check: 7 × 2 = 14.

9. D — 5

Divide to undo × 6: 30 ÷ 6 = 5. Check: 6 × 5 = 30.

10. C — 4

2 × □ = 8, so □ = 8 ÷ 2 = 4. Check: 2 × 4 + 1 = 9.