

## Relating Multiplication and Division

Multiplication and division undo each other. Knowing  $7 \times 9 = 63$  also tells you  $63 \div 9 = 7$  and  $63 \div 7 = 9$ . Three numbers, four facts — that's a fact family.

### Fact family for 4, 7, 28

$$4 \times 7 = 28 \quad 7 \times 4 = 28$$

$$28 \div 4 = 7 \quad 28 \div 7 = 4$$

### Key Concepts

1. Multiplication and division are **inverse operations**. They undo each other.
2. A **fact family** uses three related numbers — two *factors* and their *product* — to build 4 facts.
3. To find a missing factor, use division. “ $? \times 9 = 63$ ” is the same as “ $63 \div 9 = ?$ .”
4. To **check** a division answer, multiply the quotient by the divisor. If you get the dividend back, your answer is right.

### Worked Examples

① Find the missing number:  $? \times 9 = 63$ .

👉 To find a missing factor, divide the product by the known factor:  $63 \div 9 = ?$ . From your  $\times 9$  facts,  $9 \times 7 = 63$ , so the missing factor is 7. Check:  $7 \times 9 = 63$  ✓.

💡 **Answer:** 7

② Write the full fact family for 4, 8, and 32.

👉 Take the two factors 4 and 8, and the product 32. The two multiplication facts come from swapping factor order:  $4 \times 8 = 32$  and  $8 \times 4 = 32$ . The two division facts come from dividing the product by each factor:  $32 \div 4 = 8$  and  $32 \div 8 = 4$ . Four facts total.

💡 **Answer:**  $4 \times 8 = 32$ ,  $8 \times 4 = 32$ ,  $32 \div 4 = 8$ ,  $32 \div 8 = 4$

③ Check: is  $35 \div 5 = 7$  correct?

👉 Multiply to check.  $7 \times 5 = 35$ . The product matches the dividend, so yes —  $35 \div 5 = 7$  is correct. This “multiply-back” check works for any division problem.

💡 **Answer:** Yes, correct

### Practice Problems

Fill in the blank or list the fact family.

1.  $? \times 7 = 49$  \_\_\_\_\_

2.  $6 \times ? = 54$  \_\_\_\_\_

3.  $? \times 4 = 28$  \_\_\_\_\_

4.  $8 \times ? = 72$  \_\_\_\_\_

5.  $? \times 3 = 27$  \_\_\_\_\_

6.  $5 \times ? = 45$  \_\_\_\_\_

7. Fact family: 3, 8, 24 \_\_\_\_\_

8. Fact family: 7, 6, 42 \_\_\_\_\_

9.  $? \times 9 = 81$  \_\_\_\_\_

11. Fact family: 5, 9, 45 \_\_\_\_\_

10.  $4 \times ? = 36$  \_\_\_\_\_

12.  $? \times 6 = 48$  \_\_\_\_\_

**Study Tips**

- 👉 Whenever you see a missing factor problem ( $? \times n = m$ ), turn it into division ( $m \div n$ ). The answer is the same, but the division version uses facts you already know.
- 👉 Practicing fact families is more efficient than practicing single facts: one fact family is 4 equations.
- 👉 Always check division by multiplying back. It only takes a second and catches almost every mistake.

**Word Problems**

1. Sam has some bags with 7 marbles in each bag. Altogether he has 56 marbles. How many bags does he have? Write both multiplication and division equations.

Answer: \_\_\_\_\_

2. A baker made 36 cupcakes and put 4 on each plate. How many plates did she use? Check using multiplication.

Answer: \_\_\_\_\_

**Answer Key — with Friendly Explanations****Practice Problems**

1.  $49 \div 7 = 7$ .

 **Answer:** 7

2.  $54 \div 6 = 9$ .

 **Answer:** 9

3.  $28 \div 4 = 7$ .

 **Answer:** 7

4.  $72 \div 8 = 9$ .

 **Answer:** 9

5.  $27 \div 3 = 9$ .

 **Answer:** 9

6.  $45 \div 5 = 9$ .

 **Answer:** 9

7. Family:  $3 \times 8 = 24$ ,  $8 \times 3 = 24$ ,  $24 \div 3 = 8$ ,  $24 \div 8 = 3$ .

 **Answer:** *see family*

8. Family:  $7 \times 6 = 42$ ,  $6 \times 7 = 42$ ,  $42 \div 7 = 6$ ,  $42 \div 6 = 7$ .

 **Answer:** *see family*

9.  $81 \div 9 = 9$ .

 **Answer:** 9

10.  $36 \div 4 = 9$ .

 **Answer:** 9

11. Family:  $5 \times 9 = 45$ ,  $9 \times 5 = 45$ ,  $45 \div 5 = 9$ ,  $45 \div 9 = 5$ .

 **Answer:** *see family*

12.  $48 \div 6 = 8$ .

 **Answer:** 8**Word Problems**

1.  $56 \div 7 = 8$ . Eight bags.

 **Answer:** 8 bags

2.  $36 \div 4 = 9$ . Nine plates; check  $9 \times 4 = 36$ .

 **Answer:** 9 plates

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