

## Division Facts and Strategies

Every division fact has a multiplication twin. “ $56 \div 8 = ?$ ” is really asking “8 times what is 56?” If you can find the multiplication, you found the division.

Strategy	Example
Use the multiplication twin	$56 \div 8$ : ask “ $8 \times ? = 56$ ,” answer 7
Fact family (3 numbers, 4 facts)	5, 9, 45 gives 4 facts (2 mult. + 2 div.)
Halving for $\div 2$	$36 \div 2 = 18$ (half of 36)

### Key Concepts

1. Every division problem  $a \div b$  can be answered by asking: “ $b$  times *what* equals  $a$ ?” That “what” is the answer.
2. A **fact family** is the set of 4 equations you can build from three related numbers. For 5, 9, 45:  $5 \times 9 = 45$ ,  $9 \times 5 = 45$ ,  $45 \div 5 = 9$ , and  $45 \div 9 = 5$ .
3. Dividing by 2 is the same as taking *half*. Dividing by 4 is halving twice. Dividing by 10 is dropping the trailing zero.
4. The goal is automatic recall. Knowing your multiplication facts is the fastest way to know your division facts too.

### Worked Examples

①  $56 \div 8$

 Find the multiplication twin: “8 times what equals 56?” From the  $\times 8$  facts,  $8 \times 7 = 56$ . So  $56 \div 8 = 7$ .

 **Answer:** 7

②  $36 \div 4$

 Use the halving strategy. Dividing by 4 is like halving twice. Half of 36 is 18, half of 18 is 9. So  $36 \div 4 = 9$ . (Or use the twin:  $4 \times 9 = 36$ .)

 **Answer:** 9

③ Write the fact family for 5, 9, and 45.

 From any three related numbers, you get four equations — two multiplication and two division. The two factors 5 and 9 can multiply in either order, and the product 45 can be divided by either factor. The full family is:  $5 \times 9 = 45$ ,  $9 \times 5 = 45$ ,  $45 \div 5 = 9$ ,  $45 \div 9 = 5$ .

 **Answer:** Four equations as above

### Practice Problems

Find each quotient.

- |                |       |                 |       |
|----------------|-------|-----------------|-------|
| 1. $24 \div 3$ | _____ | 7. $16 \div 4$  | _____ |
| 2. $42 \div 7$ | _____ | 8. $81 \div 9$  | _____ |
| 3. $40 \div 8$ | _____ | 9. $56 \div 7$  | _____ |
| 4. $27 \div 9$ | _____ | 10. $30 \div 6$ | _____ |
| 5. $72 \div 8$ | _____ | 11. $18 \div 2$ | _____ |
| 6. $35 \div 5$ | _____ | 12. $64 \div 8$ | _____ |

**Study Tips**

- 👉 For any division problem, your first thought should be: “what multiplies to give me this?” That converts a division you might not know into a multiplication you probably do.
- 👉 Group practice cards by fact family. Once you know one fact, you actually know four.
- 👉 For dividing by 5, multiply the answer by 5 to check. “ $45 \div 5 = 9$ , because  $9 \times 5 = 45$ .” This habit prevents lots of mistakes.

**Word Problems**

1. A farmer has 54 eggs. He puts them into cartons of 6. How many cartons does he fill?

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

2. Maya has 48 photos. She puts the same number on each of 8 pages. How many photos are on each page?

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

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

1.  $3 \times 8 = 24$ .

 **Answer:** 8

2.  $7 \times 6 = 42$ .

 **Answer:** 6

3.  $8 \times 5 = 40$ .

 **Answer:** 5

4.  $9 \times 3 = 27$ .

 **Answer:** 3

5.  $8 \times 9 = 72$ .

 **Answer:** 9

6.  $5 \times 7 = 35$ .

 **Answer:** 7

7.  $4 \times 4 = 16$ .

 **Answer:** 4

8.  $9 \times 9 = 81$ .

 **Answer:** 9

9.  $7 \times 8 = 56$ .

 **Answer:** 8

10.  $6 \times 5 = 30$ .

 **Answer:** 5

11.  $2 \times 9 = 18$ , or half of 18.

 **Answer:** 9

12.  $8 \times 8 = 64$ .

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

1.  $54 \div 6 = 9$ . Nine cartons of six eggs each.

 **Answer:** 9 cartons

2.  $48 \div 8 = 6$ . Six photos per page.

 **Answer:** 6 photos per page

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