MATHEMATICS · KINDERGARTEN TO GRADE 3

Fact families for multiplication and division

Difficulty level: Easy

Mathematics: Kindergarten to Grade 3

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Overview of the concept

This is how you see that multiplication and division facts belong together. If 3 × 4 is 12, then $\frac{12}{4}$ must be 3, and knowing one fact gives you the other for free. That link lets you check your own answers, since a division answer can be checked by multiplying back. It turns a list of facts to memorise into a small set of connected ideas.



Rule

Fact families: if two numbers multiply to a third, the third divided by either one gives the other.

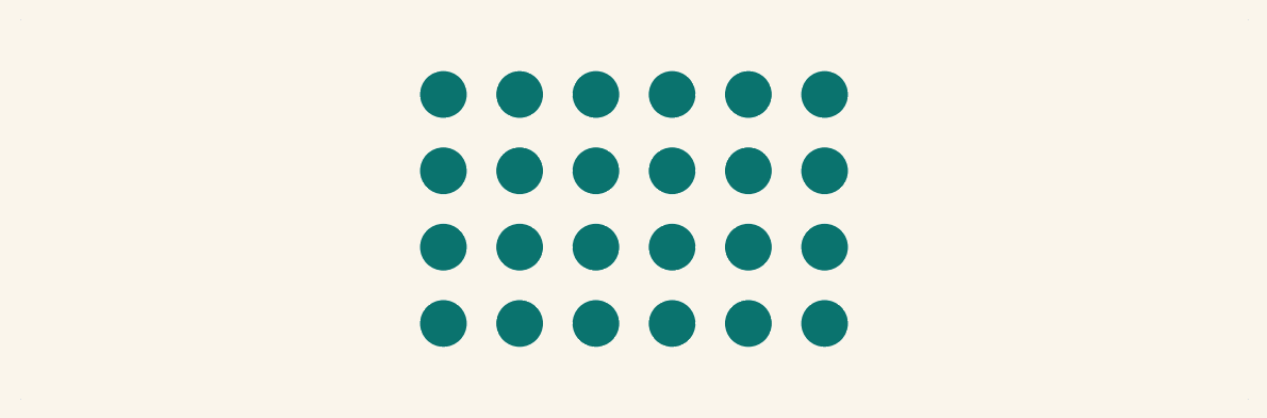
Knowing one multiplication fact gives you the two division facts for free.

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Worked examples

EXAMPLE 1

Q What is the fact family for 4, 6, and 24?



SOLUTION

The factors are 4 and 6, and the product is 24.

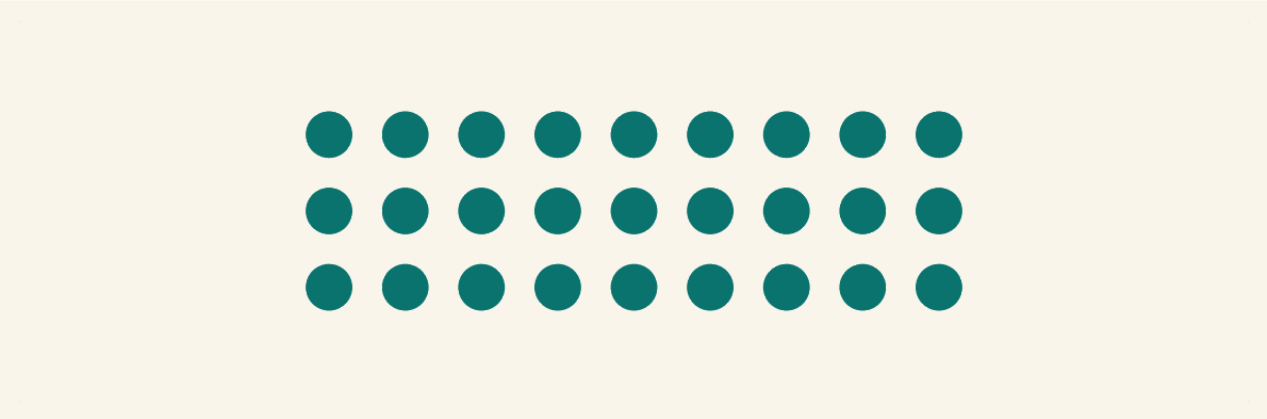
Multiplication: $4 \times 6 = 24$ and $6 \times 4 = 24$

Division: $24 \div 4 = 6$ and $24 \div 6 = 4$

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EXAMPLE 2

Q What is the fact family for 3, 9, and 27?



SOLUTION

The factors are 3 and 9, and the product is 27.

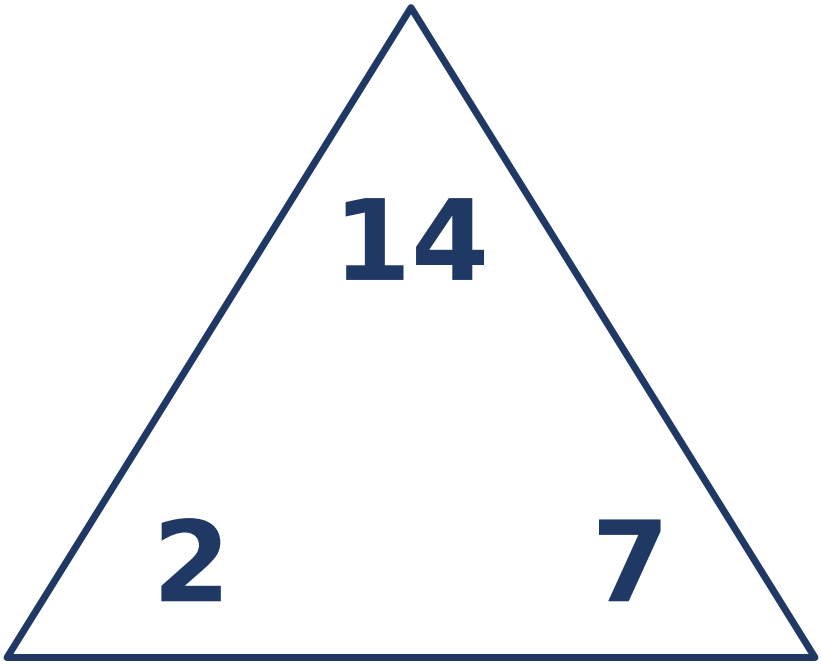
Multiplication: $3 \times 9 = 27$ and $9 \times 3 = 27$

Division: $27 \div 3 = 9$ and $27 \div 9 = 3$

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Practice questions

1 A triangle shows the numbers 2, 7 and 14, with 14 at the top. Write both multiplication facts for this family.



- **A** 2 x 7 = 14, 7 x 2 = 14
- **B** 2 x 7 = 14, 14 x 2 = 7
- **C** 2 x 14 = 7, 7 x 2 = 14
- **D** 7 x 14 = 2, 2 x 14 = 7

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2 Use the same triangle with 2, 7 and 14. Which pair of division facts belongs to this family?

- **A** 14 ÷ 2 = 7, 14 ÷ 7 = 2
- **B** 14 ÷ 2 = 6, 14 ÷ 6 = 2
- **C** 14 ÷ 7 = 3, 14 ÷ 3 = 7
- **D** 2 ÷ 14 = 7, 7 ÷ 14 = 2

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3 Write the multiplication fact for the family with 5, 8 and 40 that starts with 8.

- **A** 8 x 5 = 40
- **B** 8 x 40 = 5
- **C** 5 x 40 = 8
- **D** 40 x 8 = 5

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4 A triangle shows the numbers 5, 8 and 40, with 40 at the top. What is the product in this fact family?

- A 5
- B 8
- C 40
- D 45

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5 Write both multiplication facts for the family with 3, 6 and 18.

- A 3 x 6 = 18, 6 x 3 = 18
- B 3 x 6 = 18, 18 x 3 = 6
- C 3 x 18 = 6, 6 x 3 = 18
- D 6 x 18 = 3, 3 x 18 = 6

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6 In the fact family for 4, 6, 24, which division starts with 24 and divides by 4?

- **A** 24 ÷ 4 = 6
- **B** 24 ÷ 4 = 8
- **C** 24 ÷ 6 = 6
- **D** 24 ÷ 6 = 8

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7 A fact family has the division $\frac{36}{9} = 4$. What are the three numbers in the fact family?

- **A** 4, 9, 36
- **B** 4, 9, 32
- **C** 4, 8, 36
- **D** 3, 9, 36

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8 **Why does every multiplication fact family with two different factors have two division facts? Write one sentence.**

- **A** Each factor can be the divisor, so dividing by either one gives the other
- **B** Because multiplication always gives a bigger answer than division
- **C** Because every fact family has exactly two division facts, no matter what the numbers are
- **D** Because you can only divide the product by the smaller factor

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9 **Which of these families has only one multiplication fact?**

- **A** Family A uses 3, 7, 21
- **B** Family B uses 5, 5, 25
- **C** Family C uses 2, 8, 16

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10 Which one is not true?

A $3 \times 7 = 21$

B $\frac{21}{3} = 7$

C $\frac{21}{7} = 3$

D $7 \times 3 = 20$

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ANSWER KEY

1. 2 x 7 = 14, 7 x 2 = 14

2. 14 ÷ 2 = 7, 14 ÷ 7 = 2

3. 8 x 5 = 40

4. 40

5. 3 x 6 = 18, 6 x 3 = 18

6. 24 ÷ 4 = 6

7. 4, 9, 36

8. Each factor can be the divisor, so dividing by either one gives the other

9. Family B uses 5, 5, 25

10. 7 × 3 = 20

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