MATHEMATICS · GRADES 4-6

Fractions of a quantity

Difficulty level: Intermediate

Mathematics: Grades 4-6

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Overview of the concept

This is how you work out part of an amount, like a quarter of your paycheque going to rent or a third of a class going on a trip. A fraction of a quantity is just a share of something real, and almost every budget, sale, or tip is one of these in disguise. Once you can find it quickly, you can work out your share of a bill, how much of your pay is left after rent, or how many seats on a bus are already taken.



Rule

Fraction of a quantity: to find a fraction of a number, divide the number by the denominator to find one part, then multiply by the numerator to take that many parts.

So 20 ÷ 4 = 5, times 3, which is 15.

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Worked examples

EXAMPLE 1

Q Find $\frac{3}{4}$ of 20.

SOLUTION

This is a fraction-of-a-quantity question, and the one rule to remember is: divide by the bottom number to find one part, then multiply by the top number.

One part is 20 divided by 4, which is 5. Three parts are 3 times 5, which is 15.

$\frac{3}{4}$ of 20 is 15. Do not multiply first: dividing first keeps the numbers small.

EXAMPLE 2

Q A class has 24 students. $\frac{2}{3}$ walk to school. How many students do NOT walk to school?

SOLUTION

First find how many do walk: one third of 24 is 8, so two thirds is 2 times 8, which is 16.

The class has 24 students, so the ones who do not walk are 24 - 16 = 8

8 students do not walk to school. When a question asks how many are left, find the part first, then subtract it from the whole.

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Practice questions

1. Find $\frac{3}{4}$ of 20 stickers.

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2. A class has 18 students. $\frac{2}{3}$ walk to school. How many students walk to school?

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3. Half of 14 apples are green. How many green apples is that?

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4 A shop has 30 pens. $\frac{2}{5}$ of them are blue and $\frac{1}{5}$ of them are red. How many pens are blue or red?

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5 What is $\frac{3}{5}$ of 25 plus $\frac{1}{5}$ of 25?

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6 A garden has 32 plants. $\frac{1}{4}$ of them are carrots and $\frac{1}{2}$ of them are lettuce. How many plants are neither carrots nor lettuce?

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7 Find $\frac{5}{6}$ of 24 and $\frac{1}{6}$ of 24. How much greater is the first number?

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8 A book has 27 pages. Sara has read $\frac{2}{3}$ of it. How many MORE pages has she read than are left to read?

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9 Which is greater: $\frac{3}{8}$ of 40 or $\frac{1}{2}$ of 30?

- **A** $\frac{3}{8}$ of 40
- **B** $\frac{1}{2}$ of 30
- **C** They are equal
- **D** Cannot tell

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10 A class has 28 students. $\frac{4}{7}$ take the bus. How many students do NOT take the bus?

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ANSWER KEY

1. 15

2. 12

3. 7

4. 18

5. 20

6. 8

7. 16

8. 9

9. They are equal

10. 12

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