

Fractions as Solutions to Word Problems

When you have divided whole numbers by other whole numbers, most often the quotient was another whole number. For example, 20 divided by 4 or $20 \div 4$ is equal to a whole number- 5. However, many times whole numbers can be divided by other whole numbers and the solution will be a fraction or a mixed number.

There are many real-life situations when learning how to divide whole numbers by other whole numbers will be helpful when the solution is a fraction or mixed number. For example, maybe you are with three of your friends and you want to equally share a 10-cut pizza. How would you share the 10-cut pizza evenly? How pieces will each of you get to eat?

Remember, a fraction represents the numerator being divided by the denominator. Review how the fraction $\frac{7}{3}$ is the same as 7 divided by 3 or $7 \div 3$.

Each of the rectangles to the right has been divided into three pieces. The shaded pieces represent seven-thirds. Currently, the 7 pieces are not equally divided by 3.

In the second image though, you can easily see the 7 pieces of the rectangle are now divided by 3 which equals $2\frac{1}{3}$.

Two and one-third of each rectangle are now shaded. Two-thirds of Rectangle A and Rectangle B have been moved to Rectangle C. Now each rectangle has the same amount of shading: $2\frac{1}{3}$. The 7 pieces are now equally divided by 3.

| | | |
|---|---|---|
| 1 | 4 | 7 |
| 2 | 5 | |
| 3 | 6 | |
| A | B | C |

| | | |
|---------------|---------------|---------------|
| 1 | 1 | 1 |
| 2 | 2 | 2 |
| $\frac{1}{3}$ | $\frac{1}{3}$ | $\frac{1}{3}$ |

For real-life word problems, you can use drawings or other images to help you divide whole numbers by other whole numbers when the solution will be a fraction or mixed number. As with all word problems, it is important to identify keywords as well. For division, keywords may include *quotient*, *goes into*, *per*, *share*, *evenly*, *divided*, *split*, and others.

Sometimes, the solution to one of these problems may simply require an estimate. For example, if you and your 3 friends did share a 10-cut pizza, you would divide 10 by 4, which is the same as $\frac{10}{4}$. It is the same as $10 \div 4$. About how many pieces will each of you eat, between 1 and 2, 2 and 3, or 3 and 4?