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The Basic Ideas of Fractions

Common Fractions

If we cut a cake into eight equal pieces, each piece will be an eighth of the cake. If there are eight people at the birthday party, each person should get an eighth of the cake. One eighth can be written as 1 over 8.

But suppose we make some of the pieces big and others small. Does everybody get an eighth then?

No. Those who get the small pieces get less than an eighth; those who get the bigger pieces get more than an eighth. To be eighths, the pieces have to all be the same size; they have to be equal pieces.

So an eighth is what you get if you cut something into eight **equal** pieces. The pieces **must** be equal.

In the same way, a fifth is what you get if you cut something into 5 equal pieces.

An eighth is written 1 over 8; a fifth is written 1 over 5, and so on.

Suppose you cut a cake into five equal pieces and you eat two of the pieces. You have then eaten two fifths of the cake. That can be written as 2 over 5.

The bottom number in the fraction is called the denominator and always tells how many pieces the thing was divided into. The top number is called the numerator and always tells how many of those pieces you have.

We can take a fifth of a number too. Suppose we have 40 chocolates. If we divide them into 5 equal parts, each part will be one fifth of the chocolates. Clearly, each fifth will be 8 chocolates. So to find a fifth of 40, we divide 40 by 5 and this gives us 8.

In the same way, two fifths of 40 chocolates will be two of those lots of 8, that is 16 chocolates.

So to find two fifths of a number, divide it by 5, then multiply by 2.

To find 3 tenths of 60, divide 60 by 10 to get 6, then multiply by 3 to get 18. Three tenths of 60 is 18.

And so on.

Percent

Which is most, 3 fifths of a cake or 5 eighths of the cake? It's not easy to tell. Both are a bit over a half.

Which is most, 32 hundredths or 34 hundredths? That is easy. If we use the same denominator, it's easy to compare. For this reason, we very often use hundredths.

And we have another name for hundredth: percent. 'Percent' just means 'hundredths'.

And we use a special symbol rather than writing the fraction as a common fraction with numerator and denominator. We use the % sign.

So 32% means 32 hundredths.

We can find 1% of something by dividing it by 100, then we can find say 32% by multiplying the answer by 32.

So 32% of 50 is $50 \div 100 \times 32$, which comes to 16. 32% of $50 is $16.

Decimal Fractions

A decimal fraction uses tenths, hundredths, thousands and so on.

The first number after the decimal point is the tenths, the second is the hundredths, the third is the thousandths and so on.

So 0.524 means 5 tenths, plus 2 hundredths, plus 4 thousandths.

But 5 tenths = 50 hundredths = 500 thousandths

And 2 hundredths = 20 thousandths.

So 0.542 also equals 524 thousandths.

If we look at what place the last digit is in, in this case thousandths, then read the number ignoring the decimal point, i.e.524, then the fraction is 524 thousandths.

In the same way 0.55 is 55 hundredths, 1.86 is 186 hundredths and 14.5 is 145 tenths.

Finding a decimal fraction of a number is easy, just multiply the fraction by the number.

So 0.47 of \$20 is 0.47×20, which is 9.4 or \$9.40.