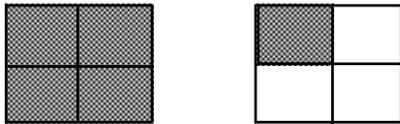


Math, you can do it!

Converting, Mixed Numbers & Fractions

by Bill Hanlon

Last time we noticed we could write fractions differently and still have the same value. Today, we will continue to look at equivalent fractions.



Let's say that Johnny ate all the first cake and one piece of the second. Someone might describe the amount eaten as $1 \frac{1}{4}$ cakes. Someone else might say Johnny ate 5 pieces of cake. I can describe eating 5 pieces as a fraction. The numerator tells me how pieces Johnny ate, the denominator tells me how many EQUAL pieces makes one whole cake - that's 4 pieces.

What we see is that $1 \frac{1}{4}$ seems to describe the same thing as $\frac{5}{4}$. That would suggest they are equivalent. In other words,

$$1 \frac{1}{4} = \frac{5}{4}$$

If we played with enough of these pictures we might see a pattern develop that would allow us to convert mixed numbers to fractions quickly.

Converting Mixed Numbers to Fractions

Multiply the whole number by the denominator and add the numerator. Place that result over the original denominator.

Example

Convert $3 \frac{4}{5}$ to a fraction.

$$3 \frac{4}{5} = \frac{5 \times 3 + 4}{5}$$

$$= \frac{19}{5}$$

Again, by playing with these equivalences long enough, we might see how to go backwards, how to convert an improper fraction to a mixed number.

Let's examine our last example to find this pattern

Knowing that $\frac{19}{5}$ has the same value as $3 \frac{4}{5}$, the question is how can I do that without having to draw a picture?

You might notice if I divide the numerator by the denominator, that gives me 3 with a remainder of 4. Both those numbers are in the answer. That's pretty nice, don't you think?

The denominator remains five because that how many equal pieces makes one whole unit. That leads me to this:

Converting an Improper Fraction to a Mixed Number

Divide the numerator by the denominator, the remainder becomes the numerator, the denominator stays the same.

Example

Convert $\frac{23}{5}$ to an improper fraction.

$$\frac{23}{5} \quad \begin{array}{r} 4 \\ 5 \overline{) 23} \\ \underline{20} \\ 3 \end{array}$$

Therefore $\frac{23}{5} = 4 \frac{3}{5}$

Let's check our vocabulary.

Fraction - part of a unit. The numerators tells you how many equal parts you have, the denominator tells you how many equal parts make one whole unit.

Proper Fraction - is a fraction that is less than one. Ex. $\frac{2}{3}$

Improper Fraction - is a fraction that is greater than one. Ex. $\frac{7}{4}$

Equivalent Fractions - are fractions that have the same value. $\frac{1}{2} = \frac{2}{4}$

Mixed Number - is a whole number and a fraction. Ex. $5 \frac{2}{5}$

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