Fractions – Lesson 7

Today we will look at improper (top-heavy) fractions and mixed in a bit more detail.

Yesterday we learned how to convert an improper (top-heavy)fraction into a mixed number,

for example, $\frac{17}{5} = 3\frac{2}{5}$.

Write $\frac{23}{8}$ as a mixed number.

We know that when we are dealing with eighths so we need eight eighths to make a whole. How many eights are in 23?

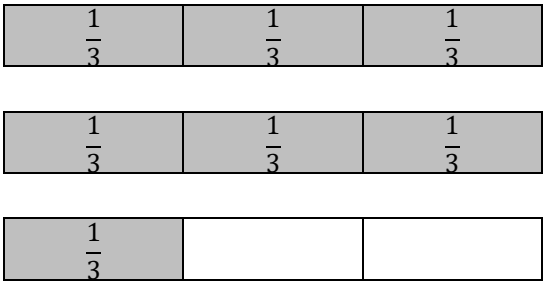
$23 \div 8 = 2$ remainder 7 so $\frac{23}{8} = 2\frac{7}{8}$

Write these improper (top-heavy) fractions as mixed numbers: -

1) $\frac{19}{7}$ **2)** $\frac{23}{6}$ **3)** $\frac{25}{4}$ **4)** $\frac{22}{9}$ **5)** $\frac{18}{5}$

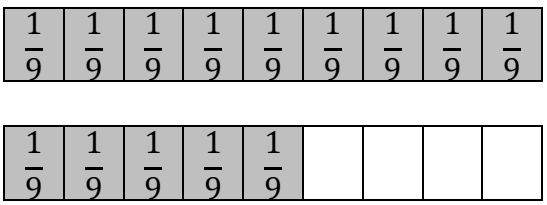
We also need to know how to change a mixed number into a top-heavy fraction.

$2\frac{1}{3}$ can be represented as:-



Simply by counting we can see that $2\frac{1}{3} = \frac{7}{3}$.

Here is a diagram representing $1\frac{5}{9}$: -



Simply by counting we can see that $1\frac{5}{9} = \frac{14}{9}$.

How do we manage without a diagram?

We know that there are three thirds in each whole so $2\frac{1}{3}$ is 2 × 3 plus one more third i.e. $\frac{7}{3}$

We know that there are nine ninths in each whole so $1\frac{5}{9}$ is 1 × 9 + 5 = $\frac{14}{9}$

More examples:-

There are five fifths in each whole so $4\frac{3}{5}$ is 4 × 5 plus three more fifths i.e. $\frac{23}{5}$.

There are seven sevenths in each whole so $3\frac{2}{7}$ is 3 × 7 plus two more sevenths i.e. $\frac{23}{7}$.

There are nine ninths in each whole so $4\frac{5}{9}$ is 4 × 9 plus five more ninths i.e. $\frac{41}{9}$.

Perhaps some highlighting will make this more obvious: -

There are five fifths in each whole so $4\frac{3}{5}$ = 4 × 5 + 3 fifths i.e. $\frac{23}{5}$.

There are seven sevenths in each whole so $3\frac{2}{7}$ = 3 × 7 + 2 sevenths i.e. $\frac{23}{7}$.

There are nine ninths in each whole so $4\frac{5}{9}$ = 4 × 9 + 5 ninths i.e. $\frac{41}{9}$.

Click for a video of this explanation https://youtu.be/ZquVW4iR2Go

Now write these mixed numbers as improper (top heavy) fractions :-

6) $1\frac{3}{4}$ **7)** $2\frac{2}{3}$ **8)** $4\frac{1}{2}$ **9)** $3\frac{2}{5}$ **10)** $2\frac{5}{6}$

11) $1\frac{3}{7}$ **12)** $4\frac{3}{8}$ **13)** $5\frac{4}{7}$ **14)** $6\frac{1}{5}$ **15)** $4\frac{2}{3}$