

# Lesson 8 – Converting Mixed and Improper Fractions

## Starter

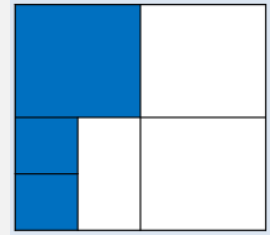
1) Place one of these symbols (< or > or =) in the gap:

a)  $5.67$  \_\_\_\_  $5.627$

b)  $5.60$  \_\_\_\_  $5.6$

c)  $0.034$  \_\_\_\_  $0.03$

d) 3 tenths 4 hundredths \_\_\_\_ 34 hundredths



2) What fraction of this shape is shaded?

## Starter Answers

1) a) >      b) =      c) >      d) =      2)  $\frac{6}{16}$  or  $\frac{3}{8}$

If we wanted to divide 7 by 2, we could write it as  $\frac{7}{2}$ . This is an **improper fraction**.

We could also write it as  $3\frac{1}{2}$ . This is a **mixed number**.

We need to be able to convert between the two.

## Example 1

Convert to an improper fraction:

1)  $4\frac{1}{3} = \frac{13}{3}$

We can draw  $4\frac{1}{3}$  like this.

Each small section is one third.

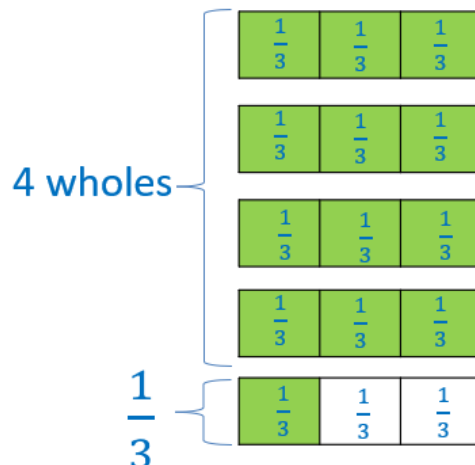
We can count the total number of thirds that are shaded.

4 wholes contain 12 thirds.

Then we have an extra third.

So, in total we have 13 thirds.

We can write this as  $\frac{13}{3}$



## Example 2

Convert to an improper fraction:

1)  $2\frac{3}{5} = \frac{13}{5}$

Draw 2 wholes and 3 fifths

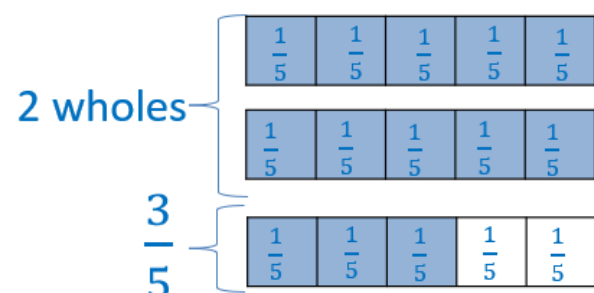
Count the number of fifths that are shaded.

2 wholes contain 10 fifths.

Then we have an extra 3 fifths.

In total, we have 13 fifths.

We can write this as  $\frac{13}{5}$



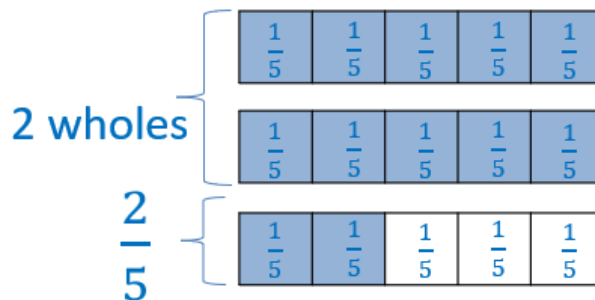
## Example 2

Convert to a mixed number:

$$1) \frac{12}{5} = 2\frac{2}{5}$$

Draw a bar and split it into 5 sections  
Each section is one fifth  
Count and shade in the fifths until you  
have 12 of them.  
We can see we have 2 whole shapes  
shaded in and an extra 2 fifths.

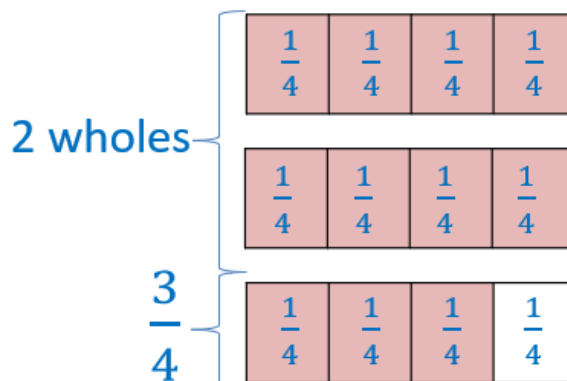
So, this is  $2\frac{2}{5}$



$$2) \frac{11}{4} = 2\frac{3}{4}$$

Draw a bar and split it into quarters  
Shade in quarters until you have 11  
of them  
We have 2 wholes and an extra 3  
quarters

This is  $2\frac{3}{4}$



## Your go

1) Change into improper fractions

a)  $1\frac{1}{2}$

b)  $3\frac{1}{4}$

c)  $5\frac{2}{3}$

2) Change into mixed numbers

a)  $\frac{10}{3}$

b)  $\frac{13}{7}$

c)  $\frac{25}{8}$

## Answers

1)a)  $\frac{3}{2}$

b)  $\frac{13}{4}$

c)  $\frac{17}{3}$

2)a)  $3\frac{1}{3}$

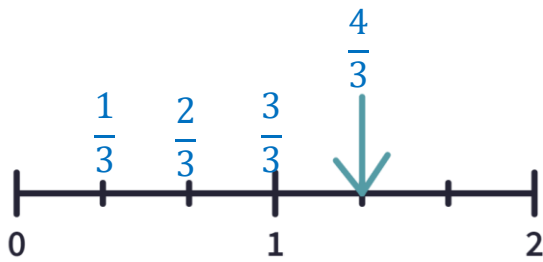
b)  $1\frac{6}{7}$

c)  $5\frac{2}{3}$

### Example 3

We can also use **number lines** to convert between mixed and improper fractions.

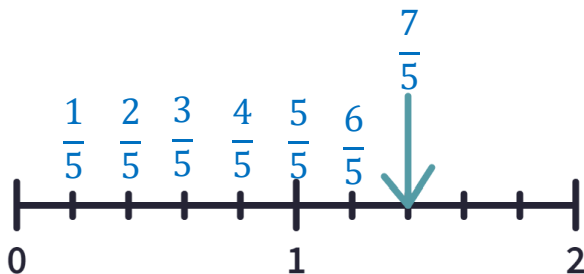
a) What number is the arrow pointing to?



Between 0 and 1, the distance is split into 3 sections. So each section is worth  $\frac{1}{3}$ . If we count up in thirds, we can see the arrow is pointing to the fourth third. This is  $\frac{4}{3}$ .

We can also see that it is one third after 1. This is  $1\frac{1}{3}$ .

b) What number is the arrow pointing to?

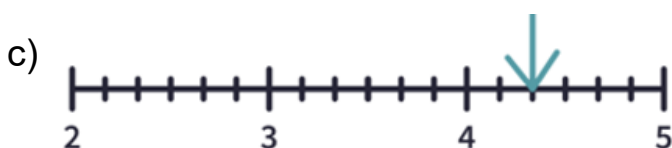
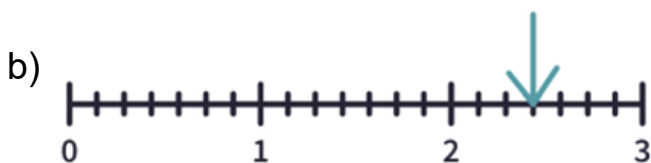
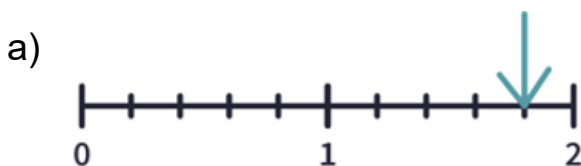


Between 0 and 1, the distance is split into 5 sections. So each section is worth  $\frac{1}{5}$ . We count up in fifths to get to the arrow. We can see the arrow is on the 7<sup>th</sup> fifth. This is  $\frac{7}{5}$ .

We can also see that it is two fifths after 1. This is  $1\frac{2}{5}$ .

### Your go

What number is the arrow pointing to? Write your answer as a mixed and improper fraction.



### Answers

1)  $1\frac{4}{5}$  and  $\frac{9}{5}$

2)  $2\frac{3}{7}$  and  $\frac{17}{7}$

3)  $4\frac{2}{5}$  and  $\frac{22}{5}$