7/4 Maths w/c 27th April 2020

6. How to add / subtract fractions 2

Watch the following video. This shows what to do when you might need to change *both* fractions in order to add or take away.

<https://www.bbc.co.uk/bitesize/topics/zsxhfg8/articles/z4jg4qt>

What happens in the video? Well, the two fractions to add are $\frac{1}{4}$ and $\frac{1}{3}$. There is not an easy way to turn the ‘3’ into a ‘4’ or to turn the ‘4’ into a ‘3’.

For these type of questions, we have to change *both* of the fractions so that they have the same number on the bottom.

In this example, we need to multiply the fraction by the bottom number of the *other* fraction. Like this:

|  |  |  |
| --- | --- | --- |
| 1 |  multiply this fraction by 3 | 1 |
| 4 |  multiply this fraction by 4 | 3 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | x3 | 3 | and | 1 | x4 | 4 |
| 4 | x3 | 12 | 3 | x4 | 12 |

Now we can add these together.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ | $$\frac{1}{12}$$ |

0 1

Here is another example.

|  |  |  |
| --- | --- | --- |
| 2 | + | 1 |
| 5 | 3 |
| x3 |  | x5 |
|  |  |  |
| 6 | + | 5 |
| 15 | 15 |

Now we can add these together.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ | $$\frac{1}{15}$$ |

0 1

$\frac{6}{15}$ + $\frac{5}{15}$ = $\frac{11}{15}$

Try this example on your own.

Draw a number line to help with the answer if you need to.

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

a) multiply the first fraction by the bottom of the second fraction (5)

|  |  |  |
| --- | --- | --- |
| 1 | x5 |  |
| 4 | x5 |  |

b) multiply the second fraction by the bottom number of the first fraction (4)

|  |  |  |
| --- | --- | --- |
| 1 | x4 |  |
| 5 | x4 |  |

c) now add your two new fractions together. Here’s a number line to help.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ | $$\frac{1}{20}$$ |

0 1

Try these questions, drawing number lines if you need to.

a) $\frac{1}{3}$ + $\frac{1}{7}$ =

b) $\frac{1}{4}$ + $\frac{1}{6}$ =

c) $\frac{2}{3}$ + $\frac{1}{4}$ =

It also works for subtraction.

d) $\frac{1}{3}$ - $\frac{1}{4}$ =

e) $\frac{1}{2}$ - $\frac{2}{5}$ =

f) $\frac{1}{2}$ - $\frac{1}{7}$ =





