How do we do Fractions at Netherbrook?

Simplify (Cancel)

12/24 can be simplified as both numbers can be divided by 12

12 divided by 12 is 1

24 divide by 12 is 2 so this simplifies to ½

Order Fractions

If they have the same denominator order using the numerator:

1/6 3/6 7/6 4/6 = 1/6 3/6 4/6 7/6

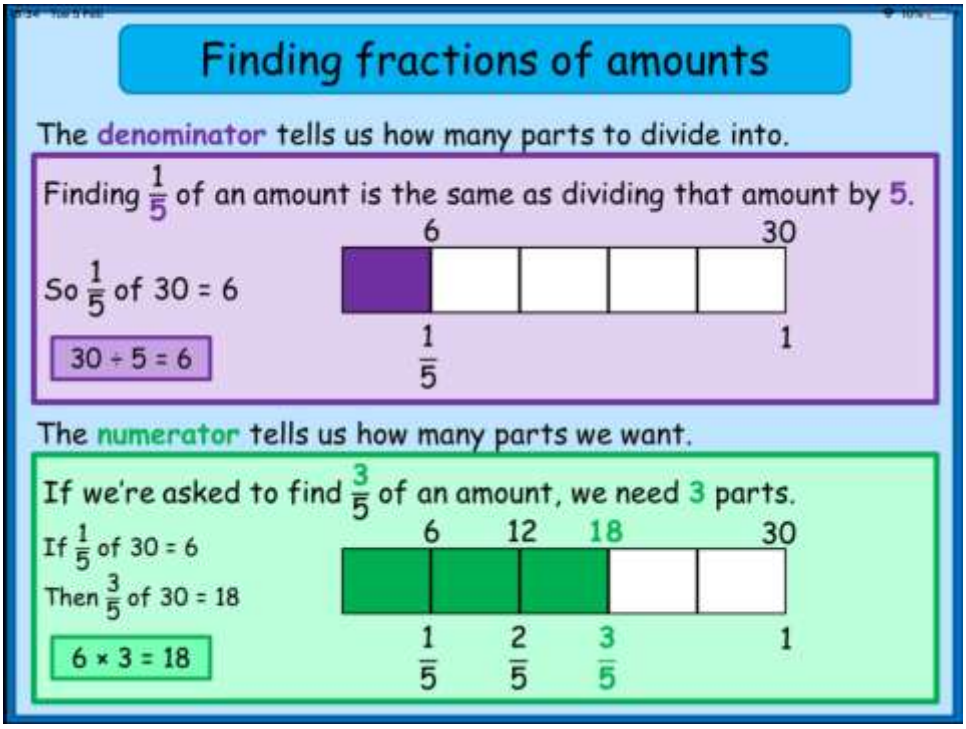
If they have different denominators, change them to a common denominator:

¼ 1/5 1/10 Changes to /20 as this is the smallest number they all divide into

¼ = 5/20 1/5 = 4/20 1/10 = 2/20 This means we can order them

1/10 1/5 ¼ (See adding fractions for more advice)

Fractions of amounts



Divide by the bottom

Then times by the top!

Adding and subtracting Fractions (Change to common denominator)

Example: What is $\frac{1}{6} + \frac{7}{15}$?

The Denominators are 6 and 15:

multiples of 6: 6, 12, 18, 24, **30**, 36, ...

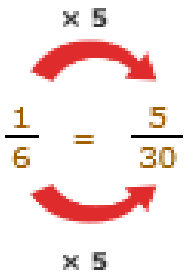
multiples 15: 15, **30**, 45, 60, ...

So the **Least Common Multiple** of 6 and 15 is **30**.

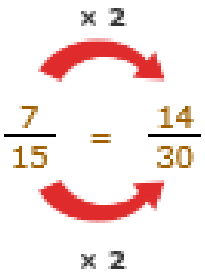
Now let's try to make the denominators the same.

Note: what we do to the bottom of the fraction,
we must also do to the top

For the first fraction we can multiply top and bottom by 5 to get a denominator of 30:



For the second fraction we can multiply top and bottom by 2 to get a denominator of 30:

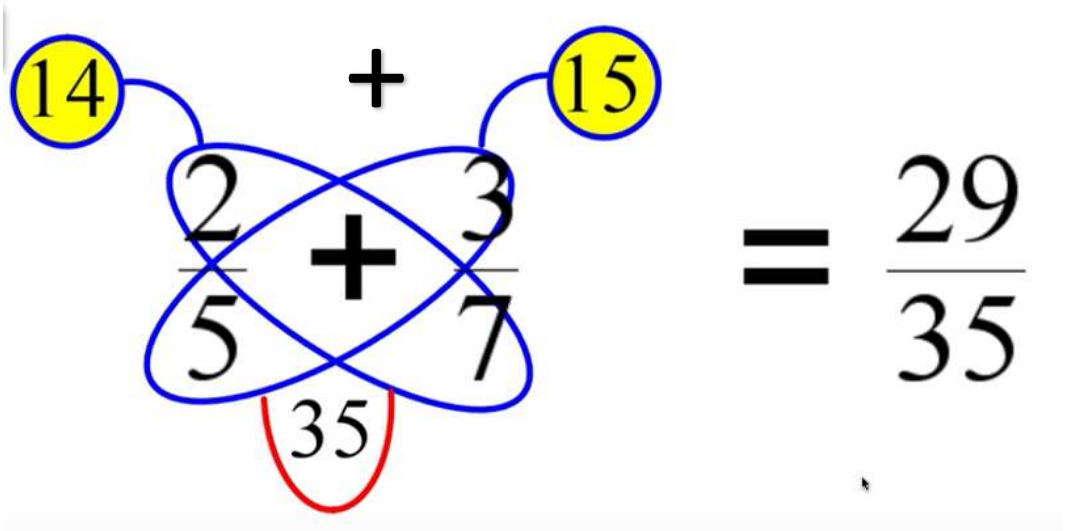


Now we can do the addition by adding the top numbers:

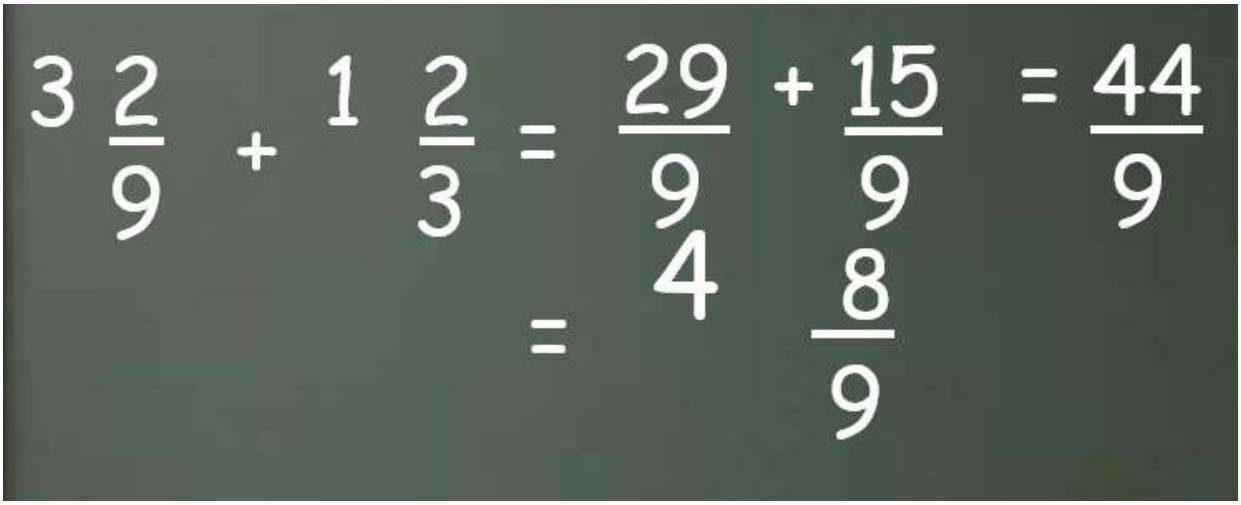
So 5/30 + 14/30 = 19/30

Subtraction is the same but you would just subtract your fractions

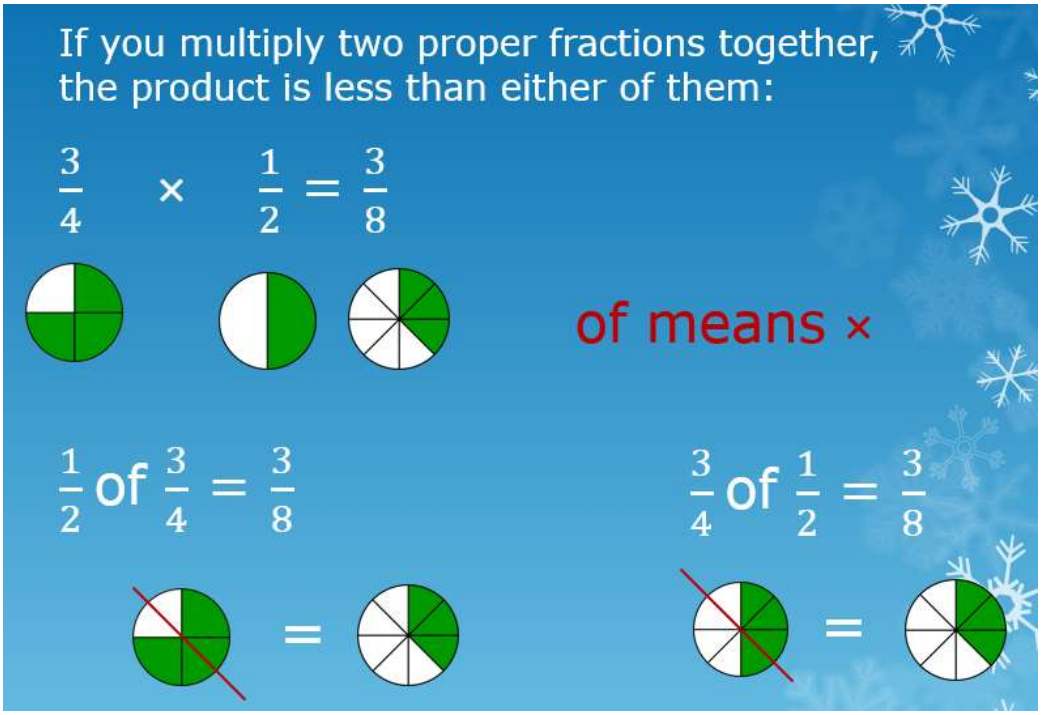
Adding and Subtracting Fractions – Butterfly method



Adding and subtracting mixed numbers



Multiply Fractions



To multiply simply times the numbers at the top, then times the numbers at the bottom, you may have to simplify

$$\frac{3}{4} \times \frac{5}{8} = \frac{15}{32}$$

$$\frac{6}{7} \times \frac{7}{9} = \frac{42}{63}$$

Simplify before multiplying

$$\frac{\cancel{6}^{1}}{7} \times \frac{5}{\cancel{6}_{1}} = \frac{1 \times 5}{7 \times 1} = \frac{5}{7}$$

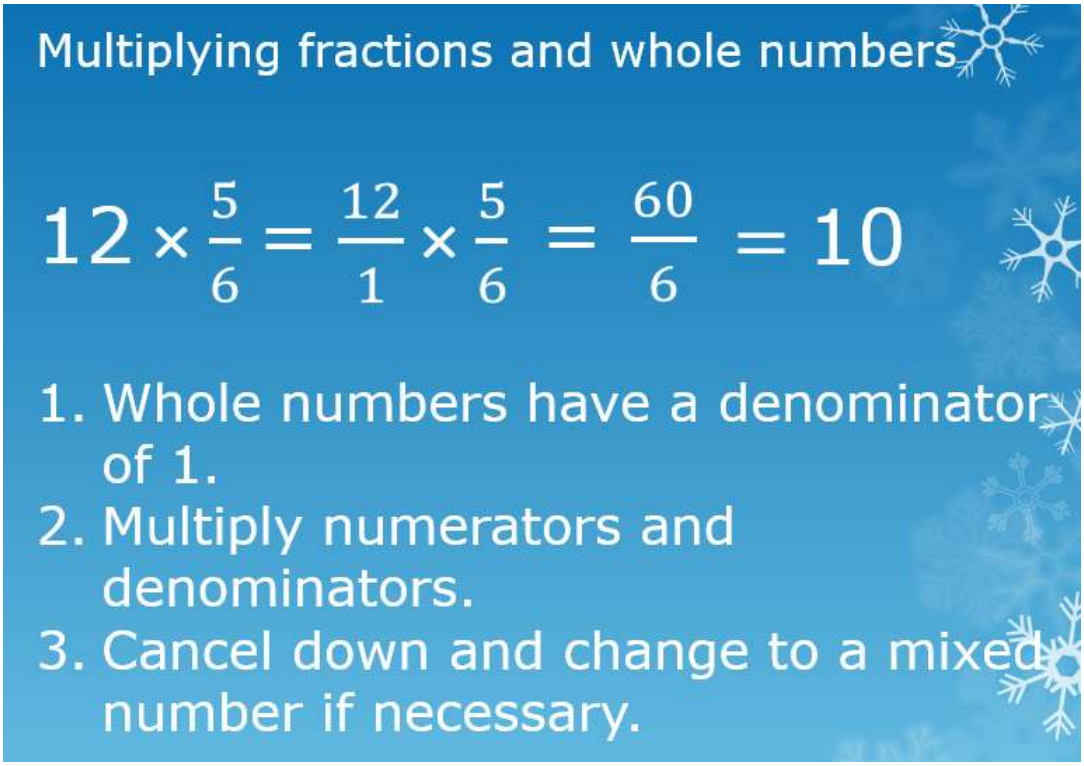
$$\frac{\cancel{4}^{1}}{\cancel{5}} \times \frac{3}{\cancel{8}_{2}} = \frac{1 \times 3}{5 \times 2} = \frac{3}{10}$$

$$\frac{\cancel{4}^{2}}{\cancel{9}^{3}} \times \frac{\cancel{6}^{2}}{7} = \frac{4 \times 2}{3 \times 7} = \frac{8}{21}$$

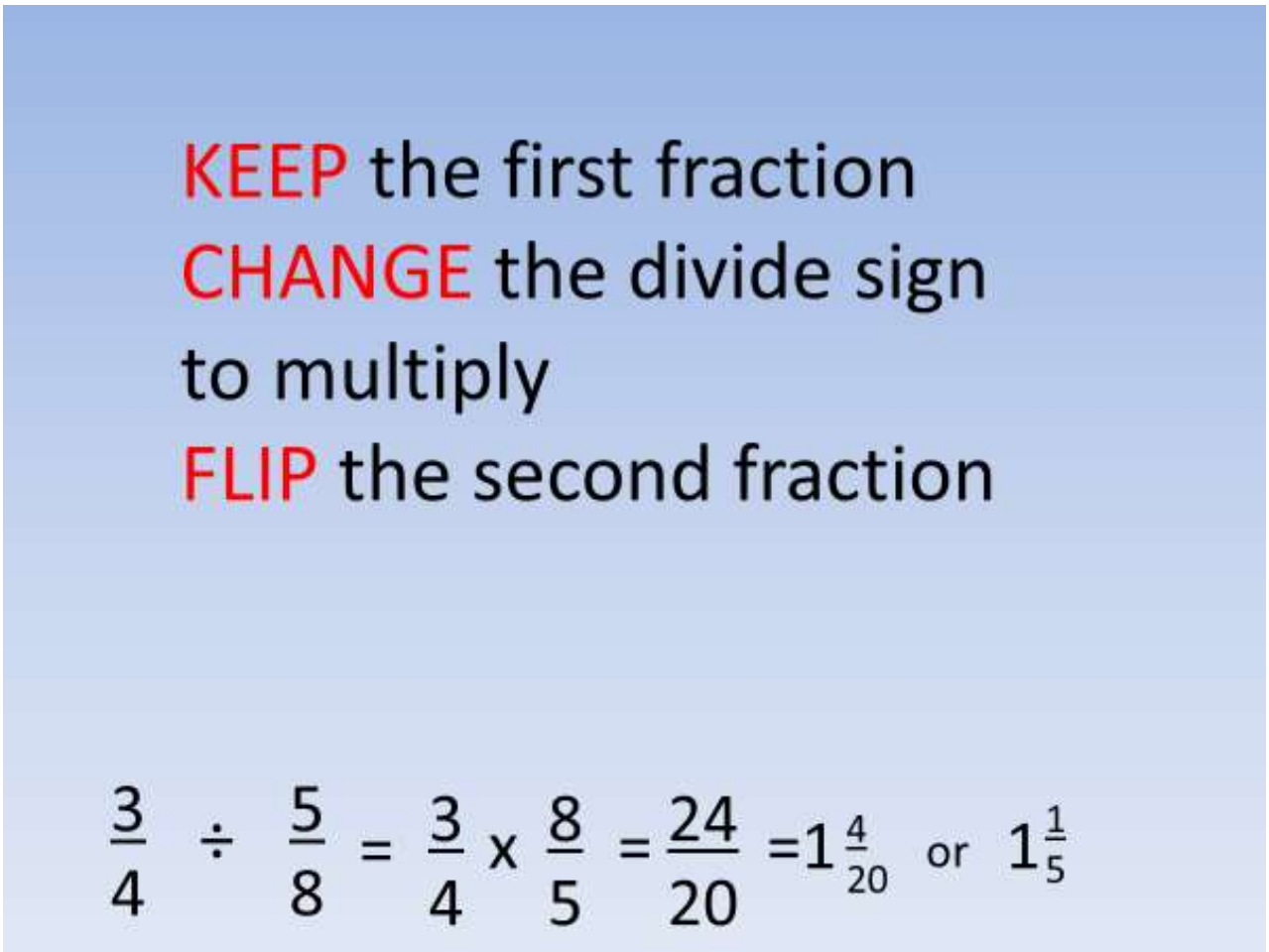
Multiplying mixed numbers.

$$2\frac{2}{5} \times \frac{1}{2} = \frac{12}{5} \times \frac{1}{2} = \frac{12}{10} = \frac{6}{5} = 1\frac{1}{5}$$

1. Change the mixed number to an improper fraction.
2. Multiply as before.
3. Cancel down and change to mixed number if necessary.



Divide Fractions



Dividing mixed numbers.

$$2\frac{2}{5} \div \frac{1}{2} = \frac{12}{5} \div \frac{1}{2} = \frac{12}{5} \times \frac{2}{1} = \frac{24}{5} = 4\frac{4}{5}$$

1. Change the mixed number to an improper fraction.
2. Divide as before.
3. Cancel down and change to a mixed number if necessary.

Dividing fractions and whole numbers

$$8 \div \frac{3}{5} = \frac{8}{1} \times \frac{5}{3} = \frac{40}{3} = 13\frac{1}{3}$$

1. Whole numbers have a denominator of 1.
2. Turn dividing fraction upside down and multiply numerators and denominators.
3. Cancel down and change to a mixed number if necessary.

Percentages