

14.2.22

LO: To subtract fractions by 'breaking the whole'.

I know that mixed numbers are comprised of whole numbers and remaining fractions.

I can subtract fractions by 'breaking the whole'

I understand that flexible partitioning allows us to work in steps to break up a mixed number.

Flashback 4.

Flashback 4

Year 5

- 1) Work out $\frac{3}{5} + \frac{7}{20} + \frac{1}{10}$
- 2) Add $\frac{1}{5}$ and $\frac{1}{10}$
- 3) Write $\frac{29}{6}$ as a mixed number.
- 4) Add together 724 and 879

Flashback 4

1) Work out $\frac{3}{5} + \frac{7}{20} + \frac{1}{10}$

2) Add $\frac{1}{5}$ and $\frac{1}{10}$

3) Write $\frac{29}{6}$ as a mixed number.

4) Add together 724 and 879

GET READY 

$$1) 1 = \frac{5}{\square}$$

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

$$3) 6 \frac{1}{2} - \frac{5}{12} =$$

$$4) 2 - \frac{1}{3} =$$

LET'S LEARN

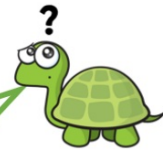
We need to convert this fraction so they both have the same denominators!

I don't think it's possible to calculate

$$2\frac{1}{4} - \frac{5}{12}$$

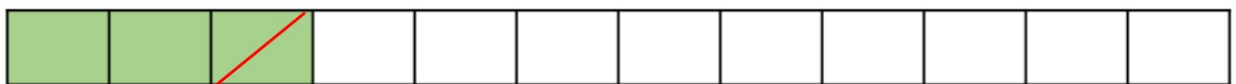
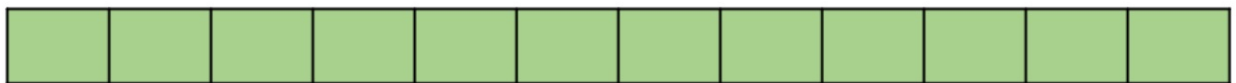
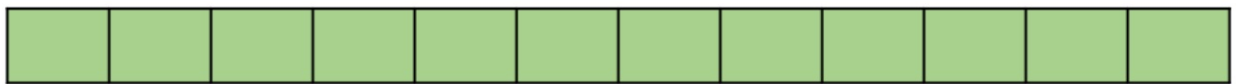
$$2\frac{1}{4} - \frac{5}{12}$$

× 3

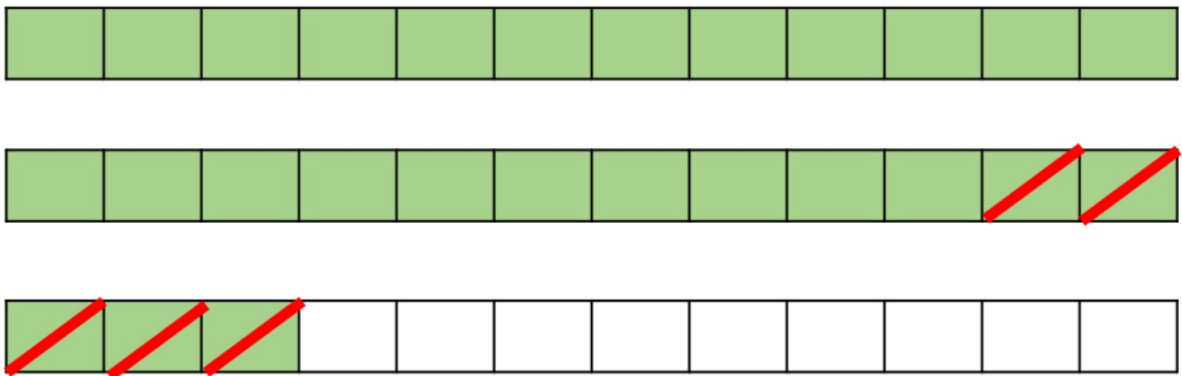


We need to subtract 5 parts of the bar model.

$$2\frac{3}{12} - \frac{5}{12}$$



We can see that we have partitioned the fraction.



$$2 \frac{3}{12} - \frac{5}{12}$$

\swarrow \searrow

$$\frac{3}{12} \quad \frac{2}{12}$$

$$2 \frac{3}{12} - \frac{3}{12} =$$
$$2 - \frac{2}{12} =$$

We have broken up one of the mixed numbers!

These fractions need the same denominator.
Remind me how to convert these fractions.

$$1 \frac{1}{5} - \frac{7}{10} =$$

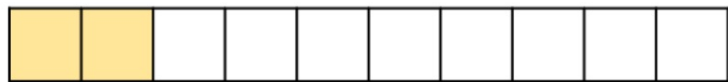
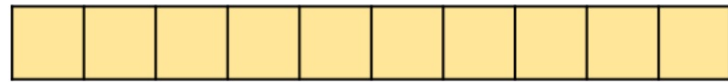
What can we partition this fraction in to?

$$1\frac{1}{5} - \frac{7}{10} =$$

Have a think



$$1\frac{2}{10} - \frac{7}{10}$$



Have a go at questions 1 - 3.

5 B's: Brain Book Board Budd Boss

1 Complete the subtractions.
Use bar models to help you.

a) $2\frac{1}{2} - \frac{7}{12} = \square$ b) $2\frac{1}{3} - \frac{7}{12} = \square$

c) $2\frac{1}{4} - \frac{7}{12} = \square$

2 a) Complete the subtractions.

$3\frac{1}{4} - \frac{1}{8} = \square$ $3\frac{1}{4} - \frac{3}{8} = \square$

$3\frac{1}{4} - \frac{2}{8} = \square$ $3\frac{1}{4} - \frac{4}{8} = \square$

b) At what point did the answer break the whole? Why?

c) Which calculations will break the whole?

$3\frac{1}{2} - \frac{9}{10}$ $7\frac{3}{4} - \frac{1}{8}$ $6\frac{11}{12} - \frac{2}{3}$ $4\frac{2}{5} - \frac{7}{15}$

3 Complete the subtractions.

a) $3\frac{1}{5} - \frac{7}{15} = \square$

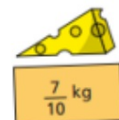
b) $3\frac{1}{16} - \frac{5}{8} = \square$

c) $4\frac{5}{12} - \frac{5}{6} = \square$

4 Here are some ingredients.



Potatoes



Cheese



Carrots

- How much more do the carrots weigh than the cheese?
- Jack uses $\frac{17}{20}$ kg of carrots.
How many kilograms of carrots does he have left?
- Jack uses all the cheese and the same amount of potatoes.
How much do the leftover potatoes weigh?

5 Eva is doing the long jump.

On her 1st attempt, she jumps $3\frac{2}{9}$ m.

Her 2nd attempt is $\frac{2}{3}$ m shorter than her first.

How far does Eva jump on her 2nd attempt?

Extension activity:

Place 2, 3 and 4 in the boxes to make the calculation correct.

$$27\frac{1}{\square} - \frac{\square}{6} = 26\frac{\square}{3}$$

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Dexter watches television for $3\frac{2}{5}$ hours during a weekend.



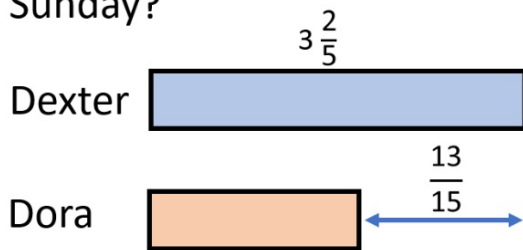
Dora watches $\frac{13}{15}$ fewer hours than Dexter.

Step 1:

Convert the denominators

Dora watches 1 hour of television on Saturday.


For how long does Dora watch television on Sunday?



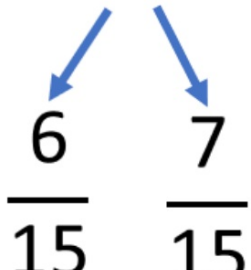
$$3\frac{2}{5} - \frac{13}{15} =$$

Whiteboards needed

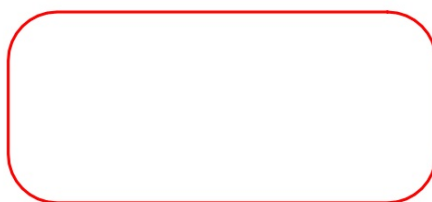
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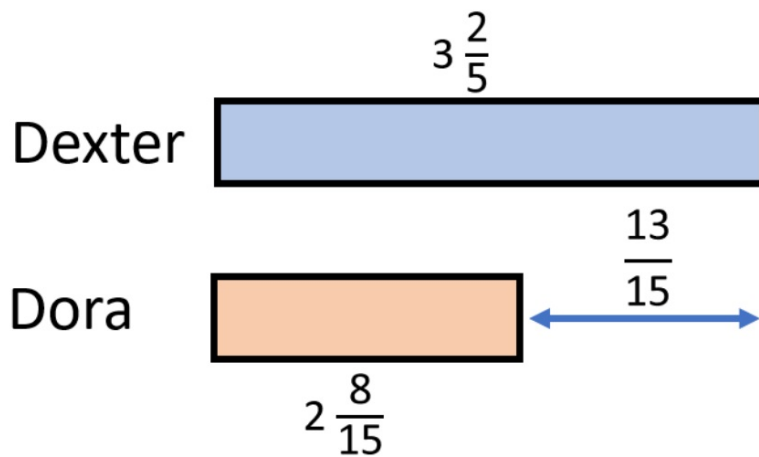
$$3 \frac{6}{15} - \frac{13}{15} =$$


On whiteboards, draw a bar model with 15 equal parts.

$$3 \frac{6}{15} - \frac{13}{15} =$$

$$\frac{6}{15} \quad \frac{7}{15}$$

$$3 \frac{6}{15} - \frac{6}{15} =$$





Dora watches 1 hour of television on Saturday.
 For how long does Dora watch television on Sunday?

$$2\frac{8}{15} - 1 =$$

Have a go at questions 4 and 5.

5 B's: Brain Book Board Budd Boss

1 Complete the subtractions.
Use bar models to help you.

a) $2\frac{1}{2} - \frac{7}{12} = \square$ b) $2\frac{1}{3} - \frac{7}{12} = \square$

c) $2\frac{1}{4} - \frac{7}{12} = \square$

2 a) Complete the subtractions.

$3\frac{1}{4} - \frac{1}{8} = \square$ $3\frac{1}{4} - \frac{3}{8} = \square$

$3\frac{1}{4} - \frac{2}{8} = \square$ $3\frac{1}{4} - \frac{4}{8} = \square$

b) At what point did the answer break the whole? Why?

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$3\frac{1}{2} - \frac{9}{10}$ $7\frac{3}{4} - \frac{1}{8}$ $6\frac{11}{12} - \frac{2}{3}$ $4\frac{2}{5} - \frac{7}{15}$

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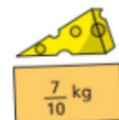
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Extension activity:

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$$27 \frac{1}{\square} - \frac{\square}{6} = 26 \frac{\square}{3}$$

3 children are working out $6\frac{2}{3} - \frac{5}{6}$

They partition the mixed number in the following ways to help them.

Dora

$$5 + 1\frac{2}{3} - \frac{5}{6}$$

Alex

$$5 + 1\frac{4}{6} - \frac{5}{6}$$

Jack

$$5 + \frac{10}{6} - \frac{5}{6}$$

Are they all correct?

Which method do you prefer?

Explain why.

True or False ?

Subtraction - breaking the whole

Tommy has $4\frac{1}{2}$ litres of juice.

He drinks $\frac{7}{8}$ of a litre.



Ron

He has $3\frac{5}{8}$ litres left.

True

$4\frac{1}{2}$ can be partitioned into $3 + \frac{12}{8}$

$$3\frac{12}{8} - \frac{7}{8} = 3\frac{5}{8}$$

**Year 5
NUMERACY
TARGET GRIDS**

I can read Roman numerals to 1000 (M) and recognise years written in numerals.

I can solve number problems and practical problems that involve all of the below.

I can round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.

I can use negative numbers in context; count forwards and backwards with positive and negative whole numbers through 0

I can count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.

I know what each digit represents in numbers to 1 000 000.

I can read, write, order and compare numbers to at least 1 000 000.

Number and Place Value

I can use all 4 rules of number to solve multi-step problems.

I can use rounding to check answers to calculations.

I can subtract mentally using increasingly large numbers.

I can add mentally using increasingly large numbers.

I can subtract numbers with up more than 4 digits

I can add whole numbers with more than 4 digits.

Addition and Subtraction

I can solve \times and \div problems, scaling by fractions and ratio.

I can solve problems involving \times and \div including factors, multiples square and cubes.

I can recognise and use square and cube numbers.

I can \times and \div whole numbers and decimals by 10, 100 and 1000.

I can multiply and divide numbers mentally.

I can divide numbers up to 4 digits by a one or two-digit number.

I can multiply numbers up to 4 digits by a one or two-digit number.

I can establish whether a number is prime and recall prime numbers up to 19.

I know and use the vocabulary of prime numbers, prime factors and composite.

I can identify multiples and factors including finding all factor pairs.

Multiplication and Division

I can use all four operations to solve problems involving measure using decimal notation, including scaling.

I can solve problems involving converting between units of time.

I can estimate the volume and capacity.

I can estimate the area of irregular shapes.

I can calculate and compare the area of rectangles (including squares)

I can measure and calculate the perimeter of composite rectilinear shapes in centimetres & metres.

I understand and use approximate equivalences between metric units and imperial units such as inches & pounds

I can convert between different units of metric measure.

Measurements

I can solve problems involving decimals to 3 decimal places.

I can read and order numbers with 3 decimal places.

I can round decimals with 2 decimal places to the nearest whole number & to one decimal place.

I can recognise and use 1000ths and relate them to 10ths, 100ths and decimal equivalents.

I can multiply proper fractions and mixed numbers by whole numbers.

I can $+$ and $-$ fractions with the same denominator and denominators that are multiples of the same number.

I can recognise mixed number and improper fractions and convert from one form to another.

I can identify, name and write equivalent fractions of a given fraction.

I can compare and order fractions whose denominators are all multiples of the same number.

Fractions

I can identify, describe and represent the position of a shape following a reflection or translation.

I can distinguish between regular and irregular polygons.

I can use the properties of rectangles to deduce related facts and find missing lengths and angles.

I can identify other multiples of 90°

I can identify angles at point on a straight line and $1/2$ a turn.

I can identify angles at a point and one whole turn.

I can draw angles and measure them in degrees ($^\circ$)

I know angles are measured in degrees; estimate and compare acute, obtuse and reflex angles.

I can identify 3-D shapes, including cubes and other cuboids from 2-D drawings.

Geometry

I can read and write decimal numbers as fractions.

I can write $\frac{1}{10}$ as a fraction and decimal equivalents.

I can complete, read and interpret information in tables including timetables.

I can solve 'difference' problems using information presented in a line graph.

I can solve 'sum' problems using information presented in a line graph.

I can solve 'comparison' problems using information presented in a line graph.

Statistics