

S1 Topic 11: Fractions 2

1) Add or subtract fractions with the same denominator

$$\frac{3}{9} + \frac{2}{9} = \frac{5}{9}$$

$$\frac{5}{7} - \frac{2}{7} = \frac{3}{7}$$

2) Add or subtract fractions with different denominators

Find a common denominator

$$\frac{2}{3} + \frac{1}{7} = \frac{14}{21} + \frac{3}{21} = \frac{17}{21}$$

$$\frac{3}{4} - \frac{9}{16} = \frac{12}{16} - \frac{9}{16} = \frac{3}{16}$$

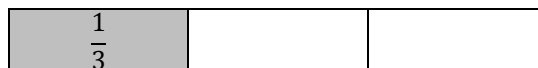
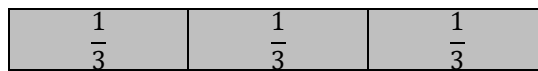
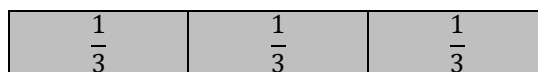
Alternative “Kiss and smile” method

$$\frac{2}{3} \times \frac{1}{7} = \frac{2 \times 7 + 3 \times 1}{3 \times 7} = \frac{14 + 3}{21} = \frac{17}{21}$$

$$\frac{3}{4} \times \frac{9}{16} = \frac{3 \times 16 - 4 \times 9}{4 \times 16} = \frac{48 - 36}{64} = \frac{12}{64} = \frac{3}{16}$$

3) Change a mixed number to an improper (top heavy) fraction

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



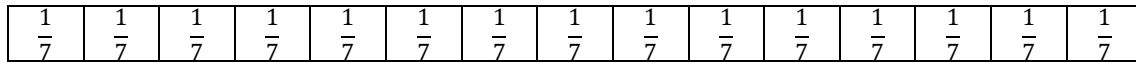
Simply by counting we can see that $2\frac{1}{3} = \frac{7}{3}$

How do we manage without a diagram?

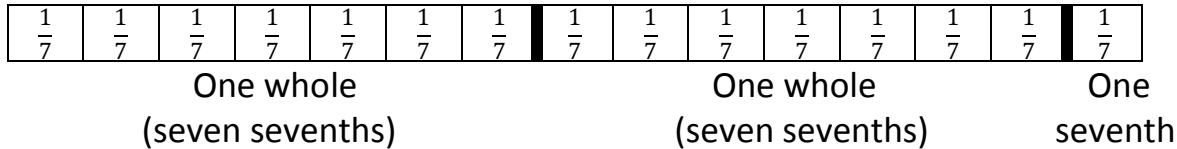
We know that there are three thirds in each whole so $2\frac{1}{3}$ is 2×3 thirds plus one more third i.e. $\frac{7}{3}$

4) Change a top heavy fraction to a mixed number.

$\frac{15}{7}$ (fifteen sevenths) can be represented as:-



We need seven sevenths to make one whole so $\frac{15}{7}$ is two whole plus one extra seventh
i.e. $\frac{15}{7} = 2\frac{1}{7}$.



How do we manage without a diagram?

$15 \div 7 = 2$ remainder 1 so $\frac{15}{7} = 2\frac{1}{7}$.

5) Solve problems by adding or subtracting fractions

a) A pint jug contains $\frac{3}{4}$ of a pint of milk. If Joan adds $\frac{1}{3}$ of a pint of milk to this jug will it overflow?

b) Jim has walked $\frac{7}{8}$ of a mile but his brother Joe has walked $\frac{4}{5}$ of a mile.
How much further has Jim walked?

**REMEMBER TO SHOW ALL YOUR WORKING
AND EXPLAIN YOUR ANSWER FULLY!**