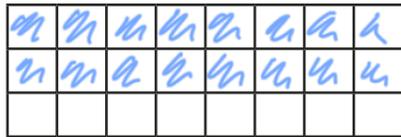
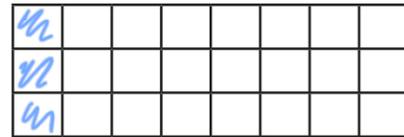


Add and subtract fractions with any denominator

1 a) Shade the grids to represent the fractions.



$$\frac{2}{3}$$



$$\frac{1}{8}$$

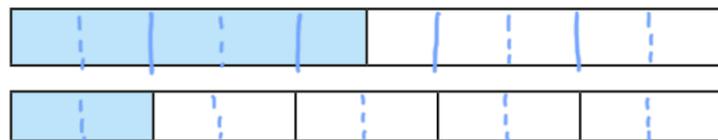
b) Use the grids to show that $\frac{2}{3} + \frac{1}{8} = \frac{19}{24}$



c) Why do you think this particular size grid was chosen?

2 Annie is working out $\frac{1}{5} + \frac{1}{2}$

She uses bar models.



Divide each bar into tenths and work out the answer to the question.

$$\frac{1}{5} + \frac{1}{2} = \frac{7}{10}$$



3 Tommy is calculating $\frac{1}{5} + \frac{5}{8}$

Here are his workings.

40 = 5 × 8

The lowest common multiple of 5 and 8 is 40

$$\frac{1 \times 8}{5 \times 8} = \frac{8}{40}$$

$$\frac{5 \times 5}{8 \times 5} = \frac{25}{40}$$

$$\frac{1}{5} + \frac{5}{8} = \frac{8}{40} + \frac{25}{40}$$

$$= \frac{33}{40}$$

Do you agree with Tommy? Yes

Talk about it with a partner

4 Work out the additions.

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

d) $\frac{1}{4} + \frac{2}{5} = \frac{13}{20}$

b) $\frac{1}{4} + \frac{1}{3} = \frac{7}{12}$

e) $\frac{3}{4} + \frac{1}{6} = \frac{11}{12}$

c) $\frac{1}{4} + \frac{2}{3} = \frac{11}{12}$

f) $\frac{3}{4} + \frac{2}{9} = \frac{35}{36}$



5 Work out the subtractions.

a) $\frac{3}{4} - \frac{2}{3} = \boxed{\frac{1}{12}}$

c) $\frac{8}{9} - \frac{5}{6} = \boxed{\frac{1}{18}}$

b) $\frac{9}{10} - \frac{2}{3} = \boxed{\frac{7}{30}}$

d) $\frac{7}{8} - \frac{2}{3} = \boxed{\frac{5}{24}}$

6 Here are four fractions.

$\boxed{\frac{5}{12}}$

$\boxed{\frac{3}{11}}$

$\boxed{\frac{2}{9}}$

$\boxed{\frac{7}{15}}$

a) Which two fractions add together to give $\frac{49}{99}$?

$\boxed{\frac{3}{11}}$ and $\boxed{\frac{2}{9}}$

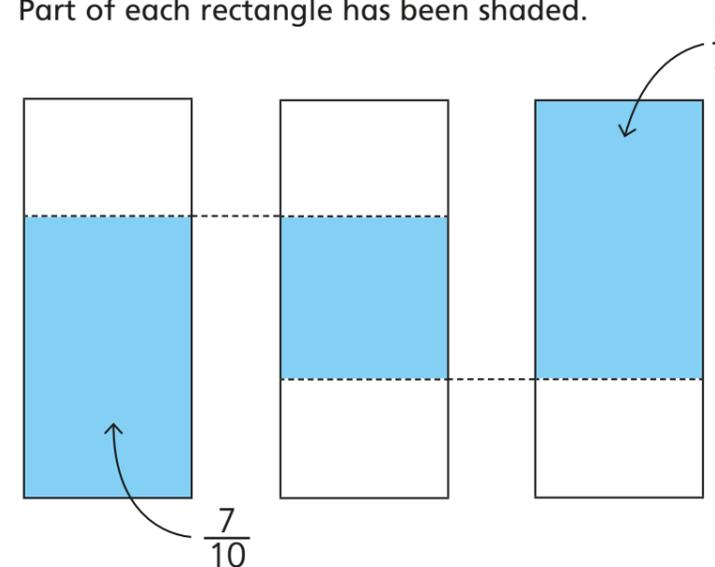
b) Which two fractions add together to give $\frac{23}{36}$?

$\boxed{\frac{5}{12}}$ and $\boxed{\frac{2}{9}}$

7 Work out $1 - \frac{1}{5} - \frac{1}{12}$

$\boxed{\frac{43}{60}}$

8 Here are three identical rectangles. Part of each rectangle has been shaded.



What fraction of the middle rectangle has been shaded?

$\boxed{\frac{11}{30}}$

9 How would you work out these calculations without a calculator? Discuss your methods with a partner.

a) $\frac{14}{91} + \frac{3}{13}$

b) $(\frac{4}{7} - \frac{2}{17}) + (\frac{3}{7} - \frac{38}{51})$

c) $\frac{1}{2} - \frac{1}{3} + \frac{1}{4} - \frac{1}{5} + \frac{1}{6}$