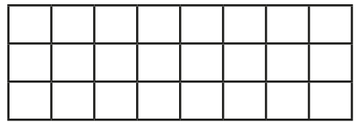
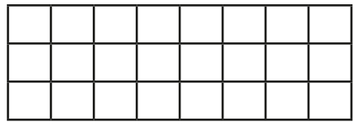
Add and subtract fractions with any denominator

1 **a)** Shade the grids to represent the fractions.

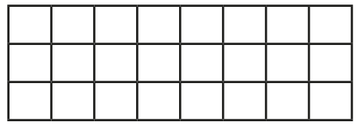


$\frac{2}{3}$



$\frac{1}{8}$

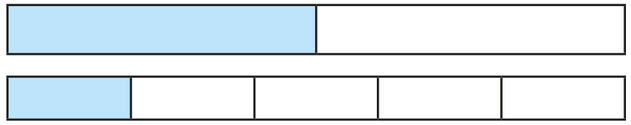
b) Use the grids to show that $\frac{2}{3} + \frac{1}{8} = \frac{19}{24}$



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.

$\frac{1}{5} + \frac{1}{2} =$ ☐

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

Here are his workings.

$40 = 5 \times 8$

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? _____

Talk about it with a partner

4 Work out the additions.

a) $\frac{1}{4} + \frac{1}{2} =$ ☐

b) $\frac{1}{4} + \frac{1}{3} =$ ☐

c) $\frac{1}{4} + \frac{2}{3} =$ ☐

d) $\frac{1}{4} + \frac{2}{5} =$ ☐

e) $\frac{3}{4} + \frac{1}{6} =$ ☐

f) $\frac{3}{4} + \frac{2}{9} =$ ☐

5 Work out the subtractions.

a) $\frac{3}{4} - \frac{2}{3} =$ ☐

b) $\frac{9}{10} - \frac{2}{3} =$ ☐

c) $\frac{8}{9} - \frac{5}{6} =$ ☐

d) $\frac{7}{8} - \frac{2}{3} =$ ☐

6 Here are four fractions.

$\frac{5}{12}$ $\frac{3}{11}$ $\frac{2}{9}$ $\frac{7}{15}$

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

☐ and ☐

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

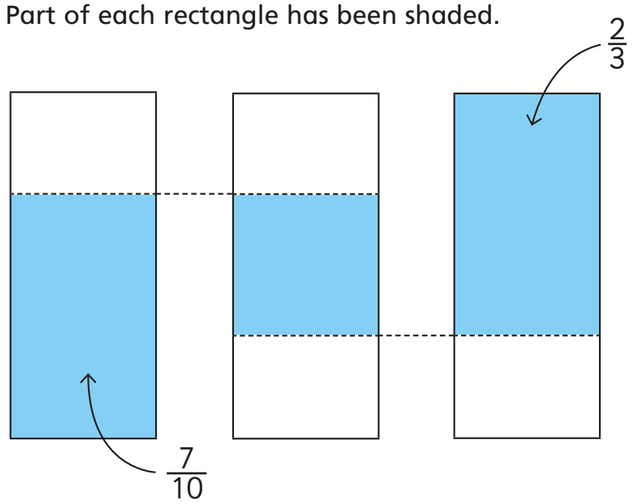
☐ and ☐

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

☐

8 Here are three identical rectangles.

Part of each rectangle has been shaded.



What fraction of the middle rectangle has been shaded?

☐

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