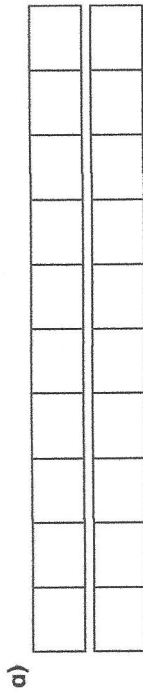


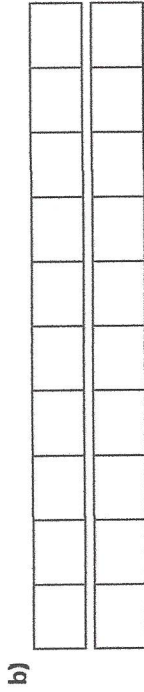
# Add fractions

1 Complete the calculations.

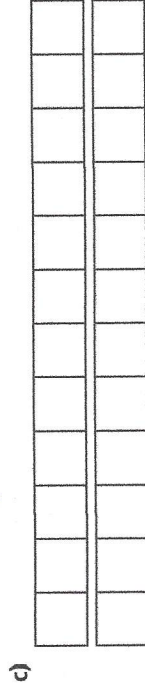
Use the bar models to help you.



$$\frac{5}{10} + \frac{7}{10} = \frac{12}{10} = 1\frac{2}{10} = 1\frac{1}{5}$$



$$\frac{5}{10} + \frac{3}{10} + \frac{1}{5} = \frac{10}{10} = 1$$



$$\frac{8}{3} + \frac{5}{6} + \frac{1}{12} = \frac{10}{12} + \frac{1}{12} = 1\frac{1}{12}$$

2 Complete the additions.

a)  $\frac{4}{5} + \frac{7}{20} = \frac{16}{20} + \frac{7}{20} = \frac{23}{20} = 1\frac{3}{20}$  ✓

d)  $\frac{4}{3} + \frac{5}{12} = \frac{16}{12} + \frac{5}{12} = \frac{21}{12} = 1\frac{7}{4} = 1\frac{1}{3}$  ✓

b)  $\frac{5}{4} + \frac{7}{20} = \frac{25}{20} + \frac{7}{20} = \frac{32}{20} = 1\frac{12}{20} = 1\frac{3}{5}$  ✓

e)  $\frac{3}{5} + \frac{11}{15} = \frac{6}{15} + \frac{11}{15} = \frac{17}{15} = 1\frac{2}{15}$  ✓

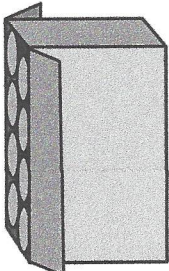
c)  $\frac{3}{4} + \frac{5}{12} = \frac{9}{12} + \frac{5}{12} = \frac{14}{12} = 1\frac{2}{12} = 1\frac{1}{6}$  ✓

f)  $\frac{5}{3} + \frac{11}{15} = \frac{25}{15} + \frac{11}{15} = \frac{36}{15} = 2\frac{6}{15} = 2\frac{2}{5}$  ✓

3 Match the additions that have the same answer.

$\frac{3}{5} + \frac{9}{20} = \frac{12}{20} + \frac{9}{20} = \frac{21}{20}$ ✓	$\frac{16}{20} + \frac{9}{20}$ ✓
$\frac{3}{4} + \frac{9}{20} = \frac{15}{20} + \frac{9}{20} = \frac{24}{20}$ ✓	$\frac{12}{20} + \frac{9}{20}$ ✓
$\frac{4}{5} + \frac{9}{20} = \frac{16}{20} + \frac{9}{20} = \frac{25}{20}$ ✓	$\frac{14}{20} + \frac{9}{20}$ ✓
$\frac{7}{10} + \frac{9}{20} = \frac{14}{20} + \frac{9}{20} = \frac{23}{20}$ ✓	$\frac{15}{20} + \frac{9}{20}$ ✓

4 Dexter has some tins of food. There are four types of food: beans, sweetcorn, soup and tomatoes.



- The total weight of all the tins is 2 kg.
- The tins of beans weigh  $\frac{2}{3}$  kg.
- The tins of sweetcorn weigh  $\frac{5}{12}$  kg.
- The tins of soup weigh  $\frac{1}{4}$  kg.

a) Work out the total weight of the tins of beans, sweetcorn and soup. 1 kg

~~1 kg~~

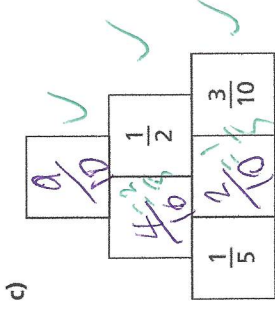
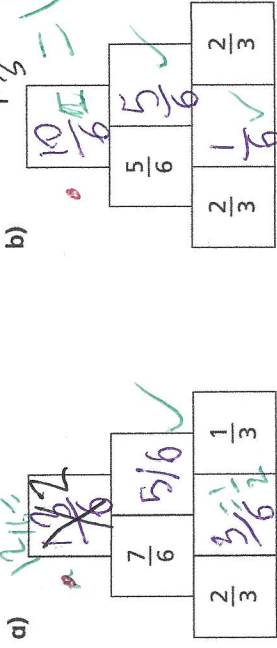
$$\frac{5}{12} + \frac{3}{4} + \frac{1}{2} = \frac{5}{12} + \frac{9}{12} + \frac{6}{12} = \frac{20}{12} = 1\frac{8}{12} = 1\frac{2}{3} \text{ kg}$$

1.25 kg

b) How much do the tins of tomatoes weigh?

$$2 \text{ kg} - 1\frac{2}{3} \text{ kg} = \frac{2}{3} \text{ kg}$$

5 Complete the addition pyramids.



6 What could the three missing numerators be?

$$\frac{\boxed{5}}{4} + \frac{\boxed{5}}{12} + \frac{\boxed{1}}{3} = \frac{13}{12}$$

Give three different possibilities.

$$\frac{0}{4} + \frac{13}{12} + \frac{0}{3} = \frac{13}{12}$$

$$\frac{1}{4} + \frac{6}{12} + \frac{1}{3} = \frac{13}{12}$$

$$\frac{13}{4} + \frac{2}{12} + \frac{2}{3} = \frac{13}{12}$$

# Add and subtract fractions

1 Complete the calculations.

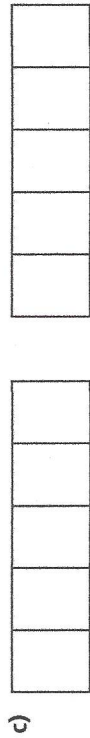
Use the bar models to help you.



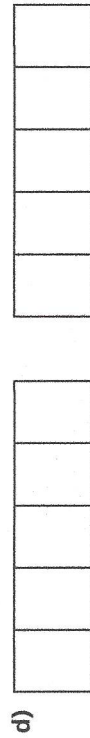
$\frac{4}{5} + \frac{3}{5} = \frac{7}{5} = \frac{12}{5}$  ✓



$\frac{6}{5} + \frac{3}{5} = \frac{9}{5} = \frac{14}{5}$  ✓



$\frac{8}{5} - \frac{6}{5} = \frac{2}{5}$  ✓



$\frac{9}{5} - \frac{3}{5} = \frac{6}{5} = \frac{15}{5}$  ✓

2 Complete the calculations.

a)  $\frac{4}{7} + \frac{3}{7} = \frac{7}{7} = 1$  ✓

f)  $\frac{17}{9} - \frac{8}{9} = \frac{9}{9} = 1$

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

g)  $\frac{16}{9} - \frac{8}{9} = \frac{8}{9}$  ✓

c)  $\frac{4}{7} + \frac{4}{7} = \frac{8}{7} = 1\frac{1}{7}$  ✓

h)  $\frac{7}{9} + \frac{2}{9} + \frac{8}{9} = \frac{17}{9} = 1\frac{8}{9}$  ✓

d)  $\frac{8}{7} - \frac{3}{7} = \frac{5}{7}$  ✓

i)  $\frac{7}{15} + \frac{2}{15} + \frac{8}{15} = \frac{17}{15} = 1\frac{2}{15}$  ✓

e)  $\frac{7}{9} + \frac{8}{9} = \frac{15}{9} = 1\frac{2}{3}$  ✓

j)  $\frac{7}{15} - \frac{2}{15} + \frac{8}{15} = \frac{13}{15}$  ✓

$\frac{5}{8} + \frac{8}{8} = \frac{13}{8}$  ✓

What could the missing numerators be?

Give six different possibilities.

$\frac{4}{8} + \frac{9}{8} = \frac{13}{8}$  ✓

$\frac{1}{8} + \frac{12}{8} = \frac{13}{8}$  ✓

$\frac{5}{8} + \frac{10}{8} = \frac{13}{8}$  ✓

$\frac{3}{8} + \frac{6}{8} = \frac{13}{8}$  ✓

$\frac{2}{8} + \frac{11}{8} = \frac{13}{8}$  ✓

$\frac{0}{8} + \frac{13}{8} = \frac{13}{8}$  ✓

# Add mixed numbers

1 Teddy and Mo are adding mixed numbers.



Teddy

$$3\frac{1}{4} + 2\frac{5}{8} = 5 + \frac{7}{8} = 5\frac{7}{8}$$



Mo

$$3\frac{1}{4} + 2\frac{5}{8} = \frac{26}{8} + \frac{21}{8} = \frac{47}{8} = 5\frac{7}{8}$$

Whose method do you prefer?

Talk about it with a partner.

Teddy Teddy's

2 Complete the calculations.

a)  $1\frac{2}{5} + 2\frac{3}{10} = 3\frac{7}{10}$

b)  $2\frac{2}{5} + 2\frac{3}{10} = 4\frac{7}{10}$

c)  $1\frac{3}{4} + 3\frac{3}{20} = 4\frac{9}{10}$

e)  $4\frac{1}{4} + 2\frac{11}{16} = 6\frac{15}{16}$

d)  $1\frac{3}{16} + 4\frac{3}{4} = 5\frac{15}{16}$

f)  $1\frac{4}{15} + 3\frac{2}{3} = 4\frac{14}{15}$

$1\frac{9}{15} + \frac{55}{15}$

3



$2\frac{3}{5} + 1\frac{7}{10} = 3 + \frac{13}{10} = 3\frac{13}{10}$

How can Ron improve his answer?

He can put  $4\frac{3}{10}$ .

4

Complete the additions.

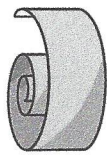
a)  $2\frac{3}{4} + 3\frac{5}{12} = 5\frac{14}{12}$

b)  $3\frac{2}{3} + 2\frac{7}{12} = 5\frac{15}{12}$

c)  $5\frac{1}{6} + 3\frac{11}{12}$   $9\frac{1}{2}$   $10\frac{1}{5}$

d)  $6\frac{7}{15} + 3\frac{3}{5} = 10\frac{1}{5}$

5 A blue ribbon is  $2\frac{4}{9}$  metres long.



A yellow ribbon is  $3\frac{2}{3}$  metres long.

a) What is the total length of the blue and yellow ribbon?

$6\frac{1}{3}$  m

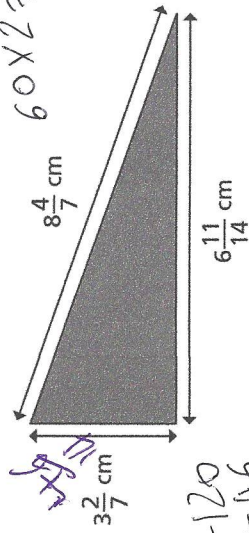
b) A red ribbon is  $1\frac{5}{18}$  metres longer than the yellow ribbon.



How long is the red ribbon?

$4\frac{7}{9}$  m

6 Calculate the perimeter of the triangle.



$3\frac{2}{7} + 8\frac{4}{7} + 6\frac{11}{14}$   
 $14 + 14 + 14$   
 $42 + 46 + 45$   
 $133$

$120 + 46 + 95 = 261$

$147 + 261 = 414$

$91 + 20 = 119$

$236$

$188\frac{11}{14}$  cm

7 Complete the calculation in three different ways.

$1 \frac{5}{5} + 1 \frac{11}{15} = 6 + \frac{11}{15} = 6\frac{11}{15}$

$2 \frac{10}{5} + 2 \frac{11}{15} = 6 + \frac{11}{15} = 6\frac{11}{15}$

$1 \frac{6}{5} + 1 \frac{11}{15} = 6 + \frac{11}{15} = 6\frac{11}{15}$

Compare answers with a partner.

8 Here are some number cards.

Number cards:  $3\frac{1}{6}$ ,  $2\frac{11}{12}$ ,  $2\frac{5}{6}$ ,  $3\frac{5}{6}$ ,  $4\frac{1}{12}$ ,  $4\frac{1}{3}$

a) What is the greatest total you can make with two cards?

$2\frac{5}{6} + 4\frac{1}{3} = 7\frac{1}{2}$

$4\frac{1}{3} + 4\frac{1}{12} = 8\frac{5}{12}$

$4\frac{1}{3} + 3\frac{5}{6} = 7\frac{1}{2}$

b) What is the smallest total you can make with two cards?

$2\frac{11}{12} + 3\frac{1}{6} = 5\frac{5}{4} = 6\frac{1}{4}$

$3\frac{1}{6} + 2\frac{11}{12} = 5\frac{5}{4}$

# Subtract mixed numbers

1 Complete the subtractions.

Use the bar models to help you.

a)


$$\frac{15}{8} - \frac{1}{2} = \frac{11}{8} = 1\frac{3}{8}$$

b)

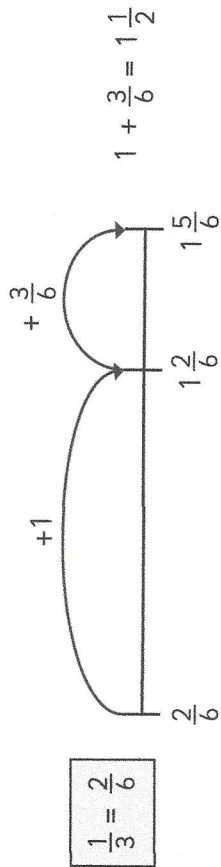

$$\frac{15}{8} - \frac{3}{4} = \frac{9}{8} = 1\frac{1}{8}$$

c)


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

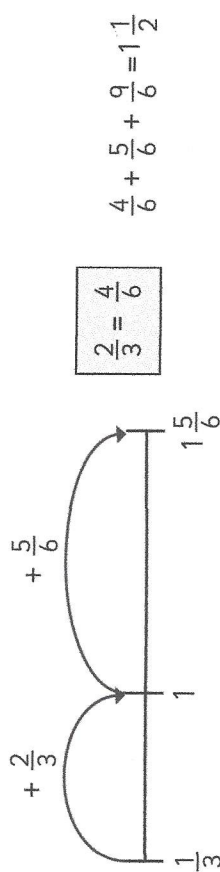
2 Dexter and Whitney are using number lines to work out  $1\frac{5}{6} - \frac{1}{3}$

Dexter's method



$$1 + \frac{3}{6} = 1\frac{1}{2}$$

Whitney's method



$$\frac{4}{6} + \frac{5}{6} + \frac{9}{6} = 1\frac{1}{2}$$

What is the same, and what is different about these methods?

*One of them is more complicated*

Use one of the methods to work out  $1\frac{5}{8} - \frac{3}{16}$

$$\frac{26}{16} - \frac{3}{16} = \frac{23}{16}$$



*1 7/16*

$$1\frac{5}{8} - \frac{3}{16} = \frac{13}{8} = 1\frac{5}{8}$$