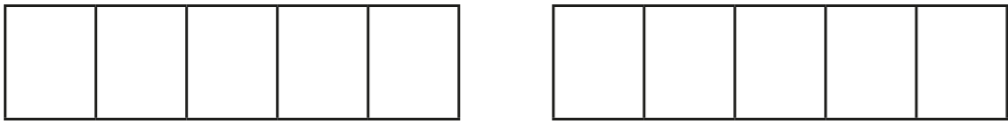# Add and subtract fractions
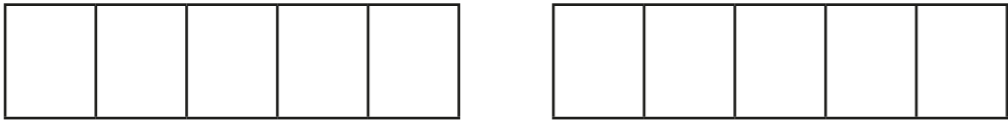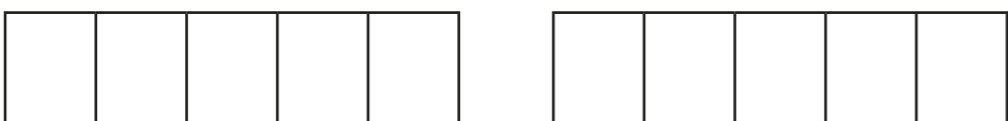
1 Complete the calculations.

Use the bar models to help you.

a)

$$\frac{4}{5} + \frac{3}{5} = \boxed{} = \boxed{}$$

b)

$$\frac{6}{5} + \frac{3}{5} = \boxed{} = \boxed{}$$

c)

$$\frac{8}{5} - \frac{6}{5} = \boxed{}$$

d)

$$\frac{9}{5} - \frac{3}{5} = \boxed{} = \boxed{}$$

2 Complete the calculations.

a) $\frac{4}{7} + \frac{2}{7} = \boxed{}$

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

c) $\frac{4}{7} + \frac{4}{7} = \boxed{} = \boxed{}$

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

e) $\frac{7}{9} + \frac{8}{9} = \boxed{} = \boxed{}$

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

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

h) $\frac{7}{9} + \frac{2}{9} + \frac{8}{9} = \boxed{} = \boxed{}$

i) $\frac{7}{15} + \frac{2}{15} + \frac{8}{15} = \boxed{} = \boxed{}$

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

3

$$\frac{\boxed{}}{8} + \frac{\boxed{}}{8} = \frac{13}{8}$$

What could the missing numerators be?

Give six different possibilities.

$$\frac{\boxed{}}{8} + \frac{\boxed{}}{8} = \frac{13}{8} \qquad \frac{\boxed{}}{8} + \frac{\boxed{}}{8} = \frac{13}{8}$$

$$\frac{\boxed{}}{8} + \frac{\boxed{}}{8} = \frac{13}{8} \qquad \frac{\boxed{}}{8} + \frac{\boxed{}}{8} = \frac{13}{8}$$

$$\frac{\boxed{}}{8} + \frac{\boxed{}}{8} = \frac{13}{8} \qquad \frac{\boxed{}}{8} + \frac{\boxed{}}{8} = \frac{13}{8}$$

4 Dora has $2\frac{3}{8}$ litres of juice.

She pours out $\frac{9}{8}$ litres of juice.

How many litres of juice does she have left?

Dora has ☐ litres left.

5 Fill in the missing numerators.

a) $\frac{3}{8} + \frac{\boxed{}}{8} = \frac{13}{8}$

b) $\frac{13}{8} - \frac{\boxed{}}{8} = \frac{7}{8}$

c) $\frac{13}{8} - \frac{\boxed{}}{8} = 1$

d) $\frac{11}{9} + \frac{\boxed{}}{9} = \frac{22}{9} = 2\frac{\boxed{}}{9}$

e) $\frac{11}{9} + \frac{\boxed{}}{9} = \frac{\boxed{}}{9} = 2\frac{2}{9}$

f) $\frac{22}{9} - \frac{\boxed{}}{9} = \frac{\boxed{}}{9} = 2\frac{2}{9}$

g) $\frac{4}{7} + \frac{\boxed{}}{7} + \frac{4}{7} = 2$

h) $\frac{5}{7} + \frac{\boxed{}}{7} + \frac{5}{7} = 2$

i) $\frac{6}{7} + \frac{\boxed{}}{7} + \frac{6}{7} = 2$

j) $\frac{14}{7} + \frac{\boxed{}}{7} + \frac{4}{7} = 3$

k) $\frac{15}{7} + \frac{\boxed{}}{7} + \frac{5}{7} = 3$

i) $\frac{16}{7} + \frac{\boxed{}}{7} + \frac{6}{7} = 4$

Compare answers with a partner. What do you notice?

6 Here are some fraction cards.

$\frac{9}{8}$ $\frac{13}{8}$ $\frac{1}{8}$ $\frac{7}{8}$ $\frac{3}{8}$ $1\frac{7}{8}$
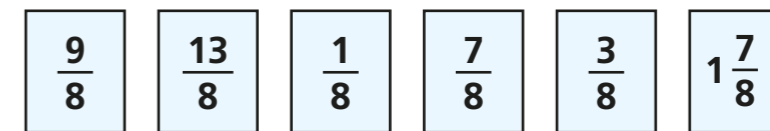
Use the cards to write pairs of fractions with a total of 2

☐ + ☐ = 2

☐ + ☐ = 2

☐ + ☐ = 2

7 Annie and Dexter both have a skipping rope.

Annie's rope is $\frac{3}{4}$ m shorter than Dexter's rope.

The ropes are $\frac{13}{4}$ m altogether.

How long is each skipping rope?

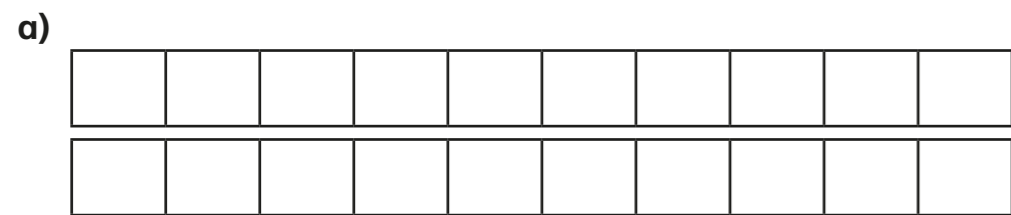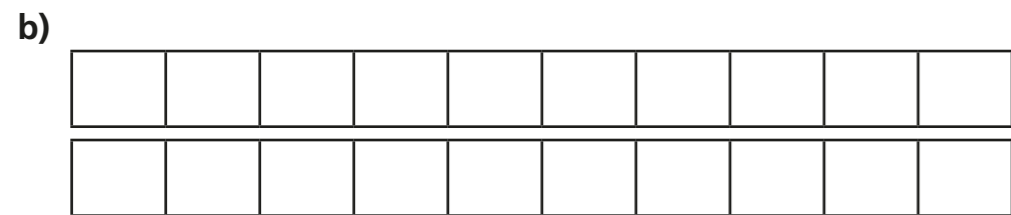Annie's rope is ☐ m long.   Dexter's rope is ☐ m long.
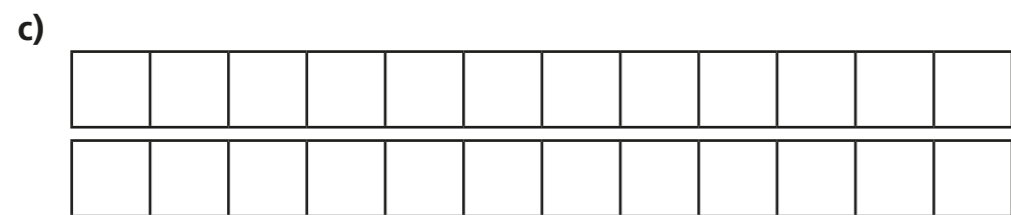
Add fractions

1 Complete the calculations.

Use the bar models to help you.

a)

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

b)

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

c)

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

2 Complete the additions.

a) $\frac{4}{5} + \frac{7}{20} = \boxed{} = \boxed{}$

b) $\frac{5}{4} + \frac{7}{20} = \boxed{} = \boxed{}$

c) $\frac{3}{4} + \frac{5}{12} = \boxed{} = \boxed{}$

d) $\frac{4}{3} + \frac{5}{12} = \boxed{} = \boxed{}$

e) $\frac{3}{5} + \frac{11}{15} = \boxed{} = \boxed{}$

f) $\frac{5}{3} + \frac{11}{15} = \boxed{} = \boxed{}$

3 Match the additions that have the same answer.

$\frac{3}{5} + \frac{9}{20}$

$\frac{16}{20} + \frac{9}{20}$

$\frac{3}{4} + \frac{9}{20}$

$\frac{12}{20} + \frac{9}{20}$

$\frac{4}{5} + \frac{9}{20}$
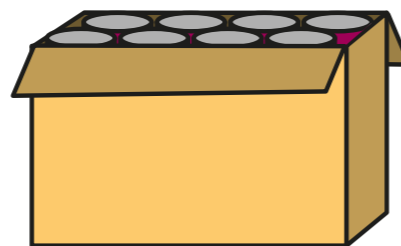
$\frac{14}{20} + \frac{9}{20}$

$\frac{7}{10} + \frac{9}{20}$

$\frac{15}{20} + \frac{9}{20}$

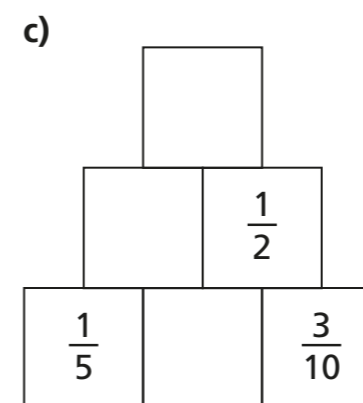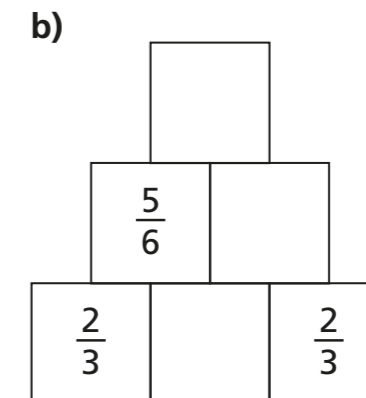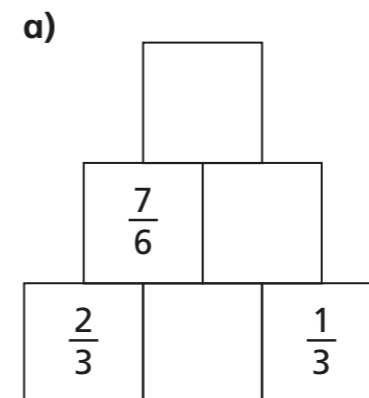**4** Dexter has some tins of food. There are four types of food: beans, sweetcorn, soup and tomatoes.

- 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.

b) How much do the tins of tomatoes weigh?

5 Complete the addition pyramids.

a)

b)

c)

6 What could the three missing numerators be?

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

Give three different possibilities.

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

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

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

Add mixed numbers

1 Teddy and Mo are adding mixed numbers.
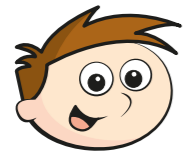
Teddy: $3\frac{1}{4} + 2\frac{5}{8} = 5 + \frac{7}{8} = 5\frac{7}{8}$

Teddy

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

Mo

Whose method do you prefer? _____

Talk about it with a partner.

2 Complete the calculations.

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

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

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

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

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

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

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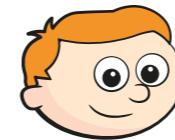
Ron: $2\frac{3}{5} + 1\frac{7}{10} = 3 + \frac{13}{10} = 3\frac{13}{10}$

How can Ron improve his answer?
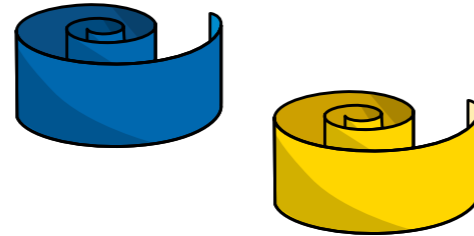
_____

_____

4 Complete the additions.

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

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

c) $5\frac{1}{6} + 3\frac{11}{12} = \boxed{}$

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

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

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

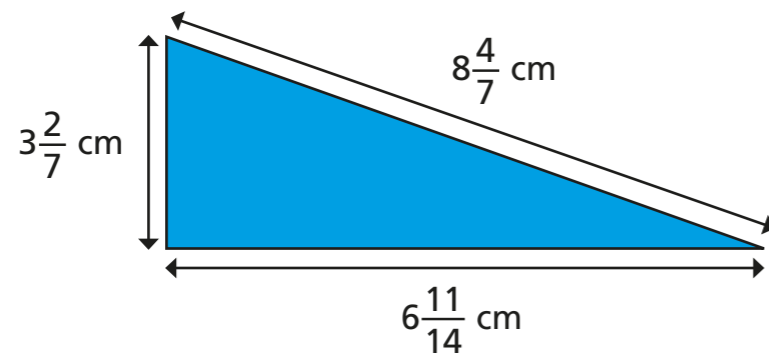**a)** What is the total length of the blue and yellow ribbon?

$\boxed{}$ m

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

How long is the red ribbon?
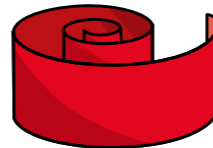
$\boxed{}$ m

6 Calculate the perimeter of the triangle.

$8\frac{4}{7}$ cm

$3\frac{2}{7}$ cm

$6\frac{11}{14}$ cm

$\boxed{}$ cm

7 Complete the calculation in three different ways.

$\boxed{} \dfrac{\boxed{}}{5} + \boxed{} \dfrac{\boxed{}}{15} = 6 + \dfrac{11}{15} = \boxed{}$

$\boxed{} \dfrac{\boxed{}}{5} + \boxed{} \dfrac{\boxed{}}{15} = 6 + \dfrac{11}{15} = \boxed{}$

$\boxed{} \dfrac{\boxed{}}{5} + \boxed{} \dfrac{\boxed{}}{15} = 6 + \dfrac{11}{15} = \boxed{}$

Compare answers with a partner.

8 Here are some 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?

$\boxed{}$

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

$\boxed{}$

Subtract mixed numbers

1 Complete the subtractions.

Use the bar models to help you.

a)

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

b)
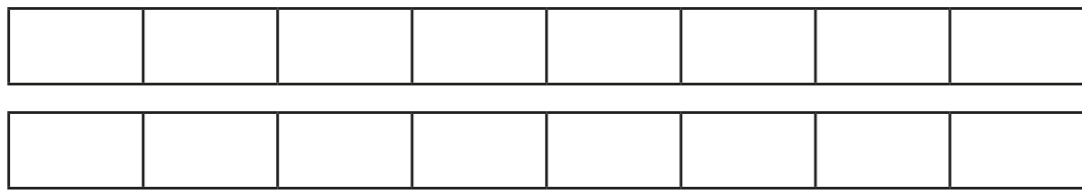
$$1\frac{7}{8} - \frac{3}{4} = \boxed{}$$

c)
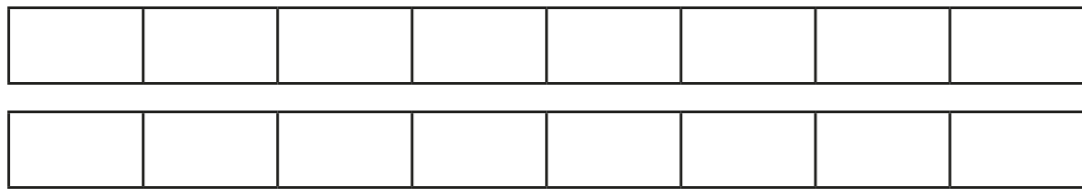
$$1\frac{1}{2} - \frac{3}{8} = \boxed{}$$

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

Dexter's method

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

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

$\frac{2}{6}$ $1\frac{2}{6}$ $1\frac{5}{6}$

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

Whitney's method

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

$\frac{1}{3}$ 1 $1\frac{5}{6}$

$\boxed{\frac{2}{3} = \frac{4}{6}}$ $\frac{4}{6} + \frac{5}{6} + \frac{9}{6} = 1\frac{1}{2}$
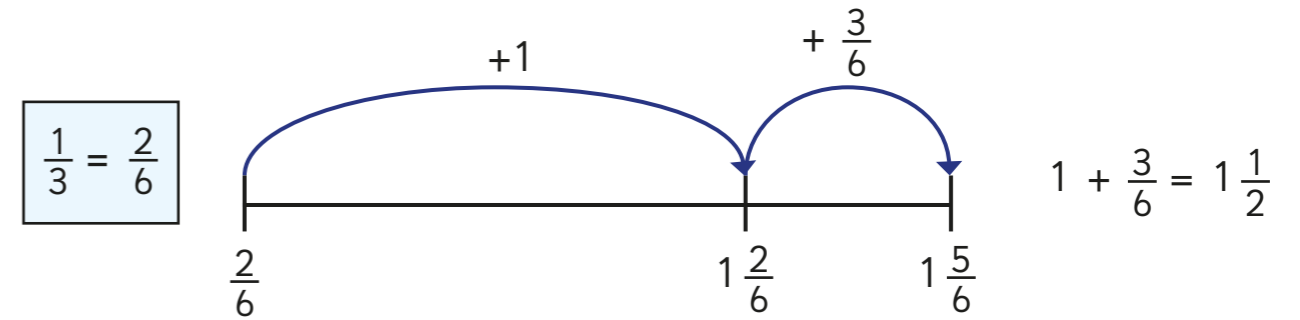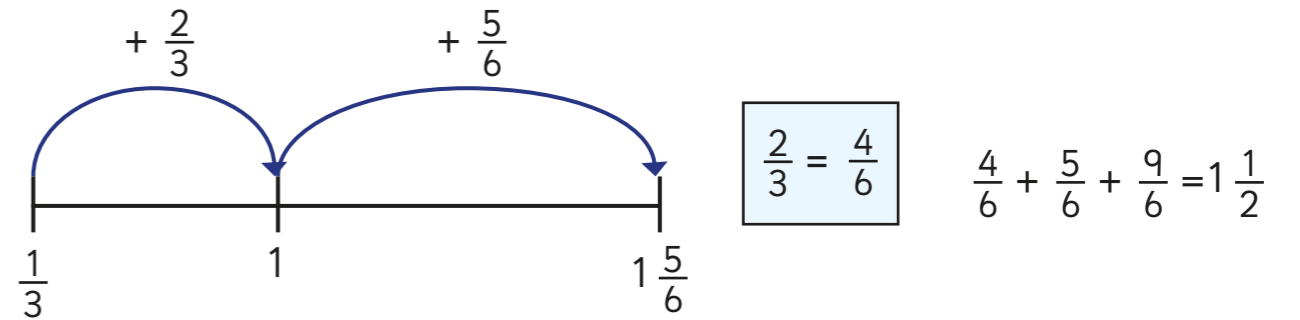
What is the same and what is different about these methods?

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

$\frac{3}{16}$ $1\frac{5}{8}$

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

3 Complete the subtractions.

a) $3\frac{1}{4} - \frac{5}{24} = \boxed{}$

d) $7\frac{5}{6} - \frac{13}{24} = \boxed{}$

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

e) $4\frac{4}{9} - \frac{4}{27} = \boxed{}$

c) $2\frac{5}{6} - \frac{2}{3} = \boxed{}$

f) $6\frac{11}{12} - \frac{3}{4} = \boxed{}$

4 A jug contains $1\frac{3}{5}$ litres of orange juice.

Eva pours $\frac{4}{15}$ litres into a glass.

How much orange juice is left in the jug?

There are $\boxed{}$ litres of orange juice left in the jug.

5 Find three different ways to complete the calculation.

$3\dfrac{\boxed{}}{5} - \dfrac{\boxed{}}{20} = 3\dfrac{1}{20}$

$3\dfrac{\boxed{}}{5} - \dfrac{\boxed{}}{20} = 3\dfrac{1}{20}$

$3\dfrac{\boxed{}}{5} - \dfrac{\boxed{}}{20} = 3\dfrac{1}{20}$

Are there any other ways to complete this calculation?

6 Three children take part in throwing competitions.

Here is the table of results.

	Javelin	Shot Put	Discus
Dexter	$15\frac{1}{4}$ m	$7\frac{5}{12}$ m	
Amir	$13\frac{3}{8}$ m		$12\frac{7}{8}$ m
Annie		9 m	$11\frac{5}{12}$ m

Use the clues to complete the table.

- Annie's javelin throw is $\frac{11}{12}$ m less than Dexter's.

- Amir's shot put throw is $\frac{3}{4}$ m less than Annie's.

- Dexter's discus throw is $\frac{1}{2}$ m less than Amir's