

Add 3 or more fractions



1 Complete the additions.

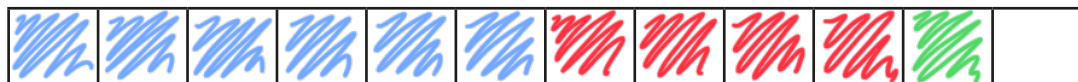
Use the bar models to help you.

a)



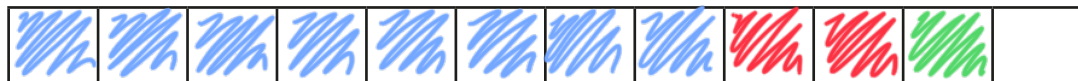
$$\frac{1}{2} + \frac{1}{4} + \frac{1}{12} = \boxed{\frac{5}{6}}$$

b)



$$\frac{1}{2} + \frac{1}{3} + \frac{1}{12} = \boxed{\frac{11}{12}}$$

c)



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

d)



$$\frac{1}{3} + \frac{1}{4} + \frac{1}{6} = \boxed{\frac{3}{4}}$$

2 Complete the additions.

$$\text{a) } \frac{1}{5} + \frac{3}{10} + \frac{7}{20} = \boxed{\frac{17}{20}}$$

$$\text{b) } \frac{1}{16} + \frac{5}{32} + \frac{3}{8} = \boxed{\frac{19}{32}}$$

$$\text{c) } \frac{1}{4} + \frac{5}{24} + \frac{5}{12} = \boxed{\frac{7}{8}}$$

$$\text{d) } \frac{3}{16} + \frac{1}{2} + \frac{1}{4} = \boxed{\frac{15}{16}}$$

$$\text{e) } \frac{1}{2} + \frac{5}{18} + \frac{1}{9} = \boxed{\frac{8}{9}}$$

$$\text{f) } \frac{1}{5} + \frac{8}{35} + \frac{2}{7} = \boxed{\frac{5}{7}}$$

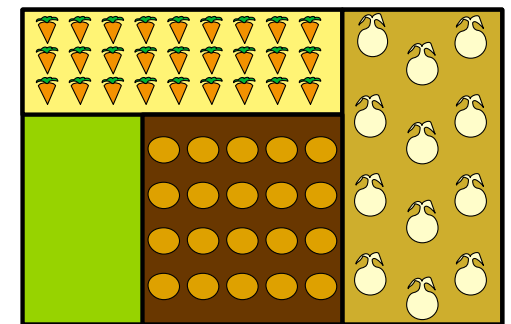
Explain how common multiples help when adding the fractions.

3 Rosie has a vegetable patch.

$\frac{2}{9}$ of the patch contains carrots.

$\frac{5}{18}$ of the patch contains potatoes.

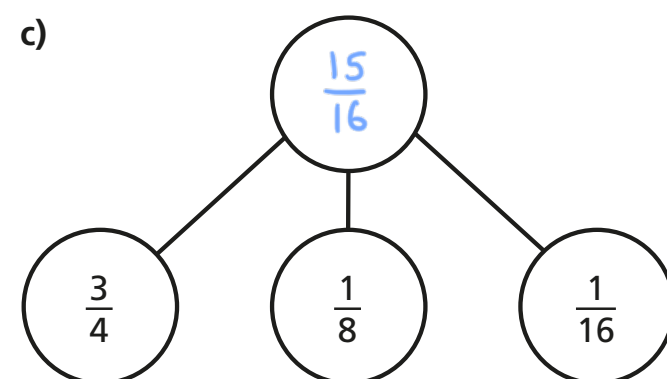
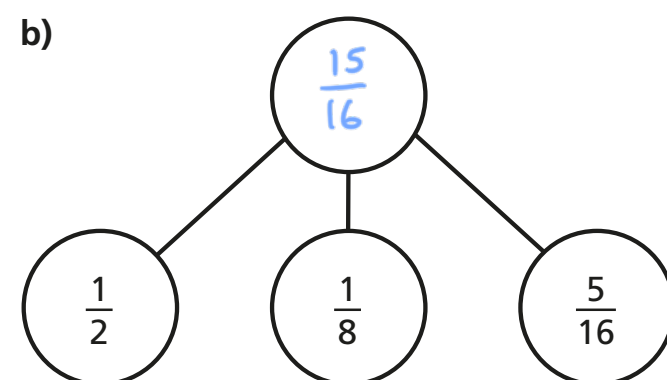
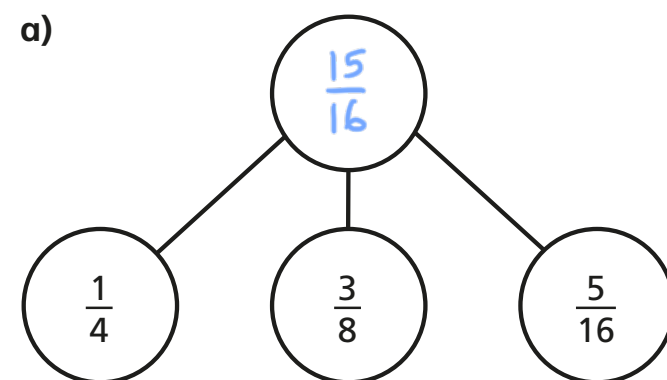
$\frac{1}{3}$ of the patch contains onions.



What fraction of the patch contains carrots, potatoes or onions?

$\boxed{\frac{5}{6}}$ of the patch contains carrots, potatoes or onions.

4 Complete the part-whole models.



d) Which one of the part-whole models is the odd one out?

Is there more than one answer?

Explain how you know.

Various answers.

5 Fill in the missing numerators.

a) $\frac{1}{8} + \frac{\boxed{2}}{16} + \frac{3}{8} = \frac{5}{8}$

d) $\frac{1}{8} + \frac{\boxed{6}}{16} + \frac{1}{4} = \frac{3}{4}$

b) $\frac{1}{8} + \frac{\boxed{6}}{16} + \frac{3}{8} = \frac{7}{8}$

e) $\frac{1}{8} + \frac{1}{16} + \frac{\boxed{9}}{16} = \frac{3}{4}$

c) $\frac{1}{4} + \frac{\boxed{2}}{16} + \frac{3}{8} = \frac{3}{4}$

f) $\frac{1}{4} + \frac{1}{16} + \frac{\boxed{7}}{16} = \frac{3}{4}$

6 Complete the number square.

The total of each column is $\frac{4}{5}$

The total of each row is $\frac{4}{5}$

$\frac{3}{10}$	$\frac{2}{5}$	$\frac{1}{10}$
$\frac{3}{20}$	$\frac{1}{10}$	$\frac{11}{20}$
$\frac{7}{20}$	$\frac{3}{10}$	$\frac{3}{20}$

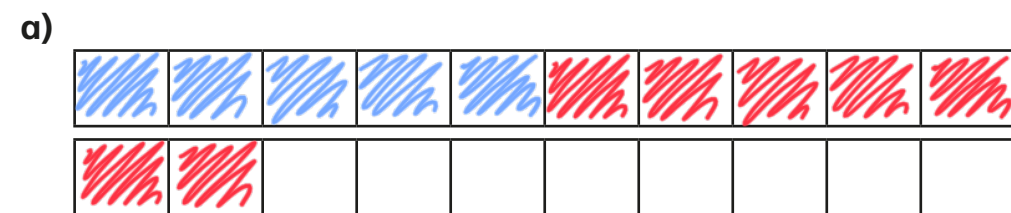
Create your own problem like this for a partner.

Add fractions

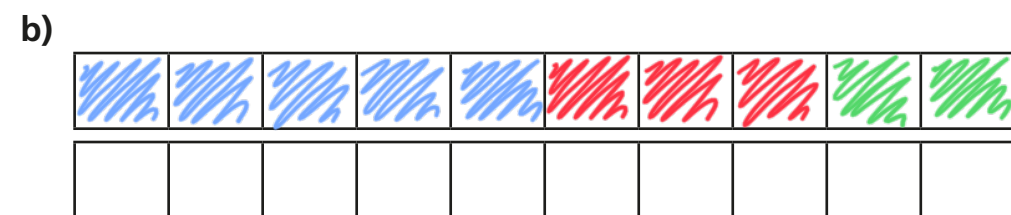


1 Complete the calculations.

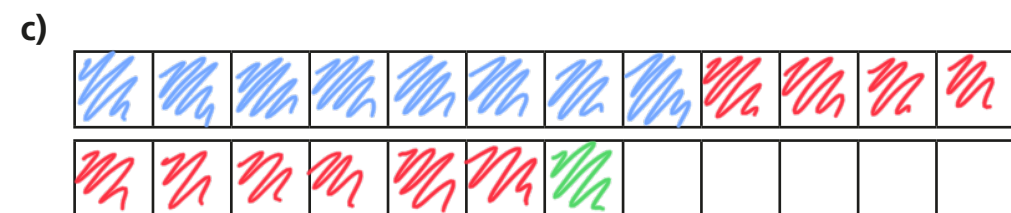
Use the bar models to help you.



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



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



$$\frac{2}{3} + \frac{5}{6} + \frac{1}{12} = \frac{19}{12} = 1\frac{7}{12}$$

2 Complete the additions.

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

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

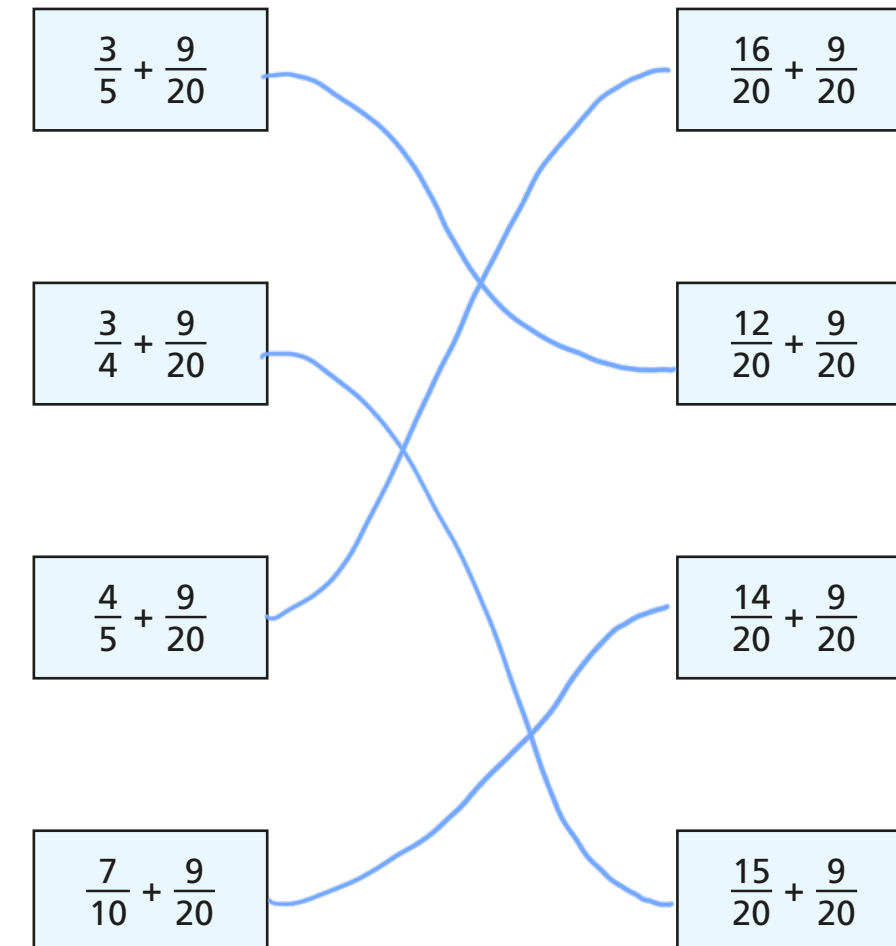
b) $\frac{5}{4} + \frac{7}{20} = \frac{32}{20} = 1\frac{3}{5}$

e) $\frac{3}{5} + \frac{11}{15} = \frac{20}{15} = 1\frac{1}{3}$

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

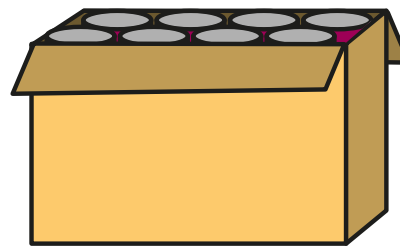
f) $\frac{5}{3} + \frac{11}{15} = \frac{36}{15} = 2\frac{2}{5}$

3 Match the additions that have the same answer.



- 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.

$$1\frac{1}{3} \text{ kg}$$

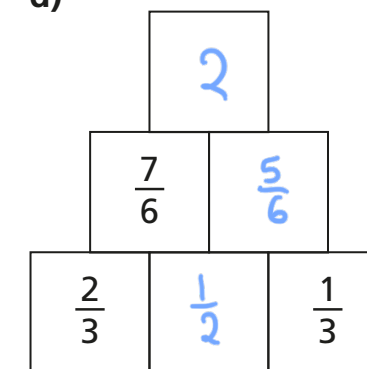
- b) How much do the tins of tomatoes weigh?

$$\frac{2}{3} \text{ kg}$$

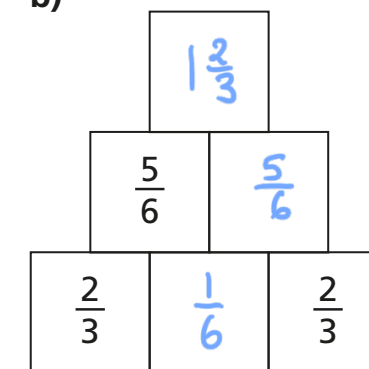


- 5 Complete the addition pyramids.

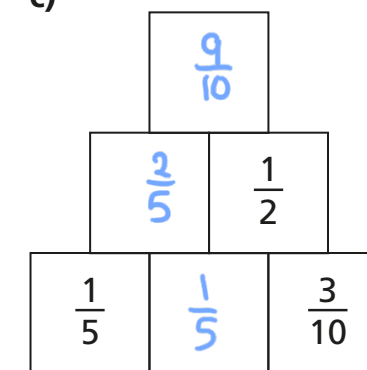
a)



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.

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

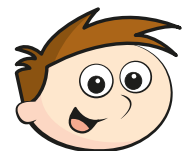
$$\frac{2}{4} + \frac{3}{12} + \frac{1}{3} = \frac{13}{12}$$

$$\frac{1}{4} + \frac{2}{12} + \frac{2}{3} = \frac{13}{12}$$



Add mixed numbers

1 Teddy and Mo are adding mixed numbers.



Teddy

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



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? various

Talk about it with a partner.



2 Complete the calculations.

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

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

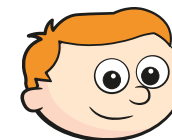
c) $1\frac{3}{4} + 3\frac{3}{20} = 4\frac{9}{10}$

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

3



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

How can Ron improve his answer?

$$\frac{13}{10} = 1\frac{3}{10} \quad \text{so} \quad 3\frac{13}{10} = 4\frac{3}{10}$$

4

Complete the additions.

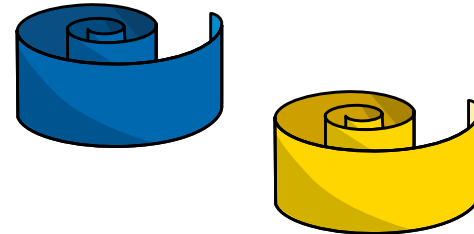
a) $2\frac{3}{4} + 3\frac{5}{12} = 6\frac{1}{6}$

b) $3\frac{2}{3} + 2\frac{7}{12} = 6\frac{1}{4}$

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

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

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



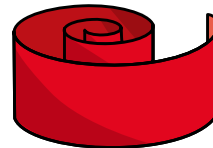
A yellow ribbon is $3\frac{2}{3}$ metres long.

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

$$\boxed{6\frac{1}{9}} \text{ m}$$

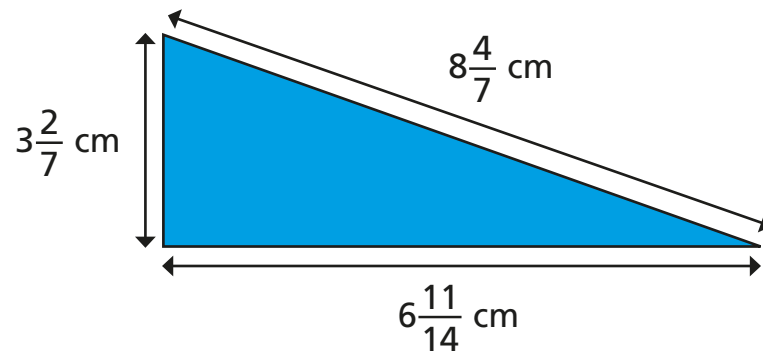
- b) A red ribbon is $1\frac{5}{18}$ metres longer than the yellow ribbon.

How long is the red ribbon?



$$\boxed{4\frac{17}{18}} \text{ m}$$

- 6 Calculate the perimeter of the triangle.



$$\boxed{18\frac{9}{14}} \text{ cm}$$

- 7 Complete the calculation in three different ways.

e.g.

$$\boxed{1} \frac{\boxed{1}}{5} + \boxed{5} \frac{\boxed{8}}{15} = 6 + \frac{11}{15} = \boxed{6\frac{11}{15}}$$

$$\boxed{3} \frac{\boxed{2}}{5} + \boxed{3} \frac{\boxed{5}}{15} = 6 + \frac{11}{15} = \boxed{6\frac{11}{15}}$$

$$\boxed{1} \frac{\boxed{4}}{5} + \boxed{4} \frac{\boxed{14}}{15} = 6 + \frac{11}{15} = \boxed{6\frac{11}{15}}$$

Compare answers with a partner.

- 8 Here are some number cards.

$3\frac{1}{6}$	$2\frac{11}{12}$	$2\frac{5}{6}$	$3\frac{5}{6}$	$4\frac{1}{12}$	$4\frac{1}{3}$
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- a) What is the greatest total you can make with two cards?

$$\boxed{8\frac{5}{12}}$$

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

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

Subtract fractions



1 Complete the subtractions.

Use the bar models to help you.

a)



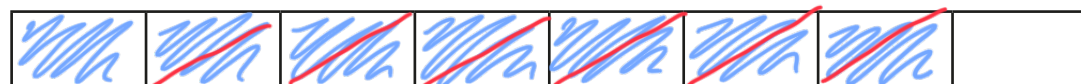
$$\frac{5}{6} - \frac{1}{2} = \frac{1}{3}$$

b)



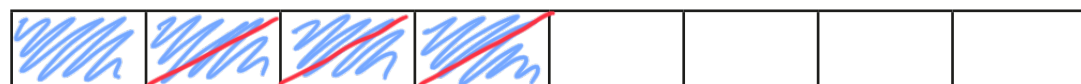
$$\frac{5}{6} - \frac{1}{3} = \frac{1}{2}$$

c)



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

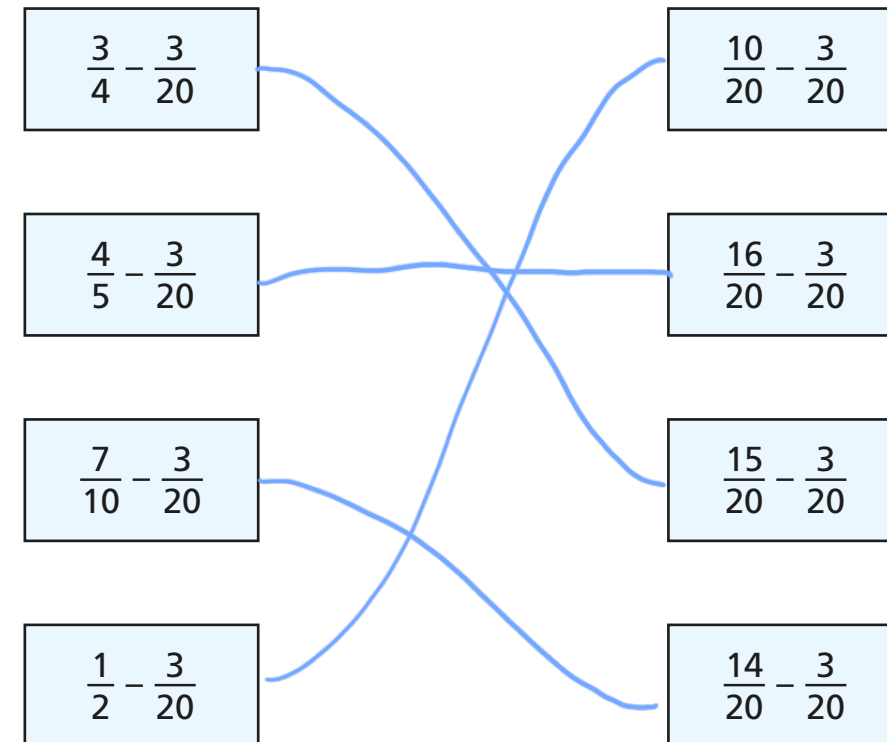
d)



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

2

Match the equivalent calculations.



3

Jack walks $\frac{7}{9}$ km to school.

Aisha walks $\frac{2}{3}$ km to school.

How much further does Jack walk than Aisha?

Jack walks $\frac{1}{9}$ km further than Aisha.

4 Complete the subtractions.

$$\text{a) } \frac{7}{8} - \frac{1}{16} = \boxed{\frac{13}{16}}$$

$$\frac{5}{8} - \frac{1}{16} = \boxed{\frac{9}{16}}$$

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

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

$$\text{b) } \frac{6}{7} - \frac{2}{21} = \boxed{\frac{16}{21}}$$

$$\frac{5}{7} - \frac{4}{21} = \boxed{\frac{11}{21}}$$

$$\frac{4}{7} - \frac{6}{21} = \boxed{\frac{6}{21}}$$

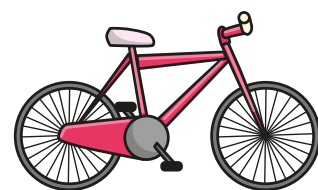
$$\frac{3}{7} - \frac{8}{21} = \boxed{\frac{1}{21}}$$

What do you notice?



5 On Saturday, Alex cycles for $\frac{2}{3}$ of an hour.

On Sunday, she cycles for $\frac{5}{12}$ of an hour.



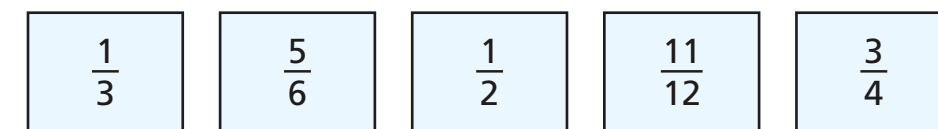
a) How many more hours does Alex cycle on Saturday than Sunday?

$\boxed{\frac{1}{4}}$ of an hour

b) How many more minutes does Alex cycle on Saturday than Sunday?

$\boxed{15}$ minutes

6 Here are some fraction cards.



a) Which two fractions have a difference of $\frac{1}{4}$?

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

b) Which two fractions have a difference of $\frac{1}{2}$?

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

c) Which two fractions have a difference of $\frac{1}{12}$?
Give two possible pairs.

$$\boxed{\frac{11}{12}} - \boxed{\frac{5}{6}} = \frac{1}{12}$$

$$\boxed{\frac{5}{6}} - \boxed{\frac{3}{4}} = \frac{1}{12}$$

7 The perimeter of the rectangle is $\frac{14}{15}$ m.

Work out the missing length.

