14.11.25

LI: To be able to subtract mixed numbers.

one digit per box

Underline your date and LI

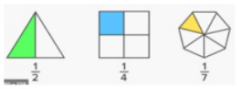
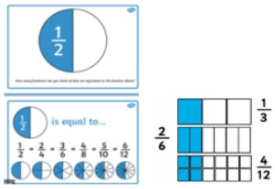
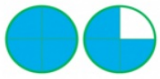
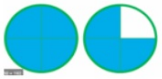
Key vocabulary

numerator, denominator, unit fraction, non-unit fraction, equivalent fractions, proper fractions, improper fractions, mixed numbers, simplify

Our Learning Journey

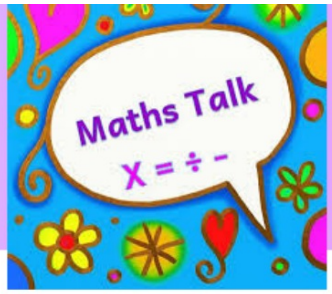
Step 1	Equivalent fractions and simplifying
Step 2	Equivalent fractions on a number line
Step 3	Compare and order (denominator)
Step 4	Compare and order (numerator)
Step 5	Add and subtract simple fractions
Step 6	Add and subtract any two fractions
Step 7	Add mixed numbers
Step 8	Subtract mixed numbers

Key vocabulary

Key word	Definition	Picture/example
Numerator	The **top** part of a fraction. This is how many 'parts' of the whole you have. All of the parts MUST be the same size.	 There are 4 parts in one whole pizza. We have 3 parts.
Denominator	The **bottom** part of a fraction. This is how many 'parts' make one whole. All of the parts MUST be the same size.	
Unit fraction	A fraction where the numerator is **1**.	
Non-unit fraction	A fraction where the numerator is **greater than 1**.	
Equivalent fractions	Fractions that are **equal**. They have different numerators and denominators but represent the same value. Using a fraction wall (see below) can be useful for finding equivalent fractions.	
Proper fractions	A fraction where the numerator is **less** than the denominator.	$\frac{2}{3}$ $\frac{3}{6}$ $\frac{5}{7}$ $\frac{16}{40}$
Improper fractions (improper, not inproper)	A fraction where the numerator is **more** than the denominator. This means you will have more than one whole.	 $\frac{7}{4}$
Mixed numbers	A number made up of a whole number and a proper fraction.	 $1\frac{3}{4}$

Simplify:

to find the equivalent fraction with the smallest denominator



Key questions

- How can you partition the mixed number?
- How can the subtraction be rewritten to make it easier?
- In this question, is it easier to deal with wholes and fractions or to use improper fractions? Why?
- How do you convert a mixed number into an improper fraction?

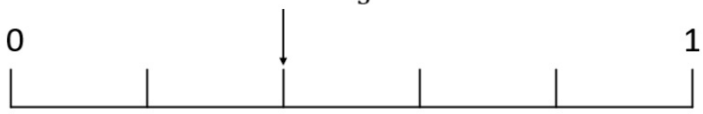
Starter/Recap

Flashback 4 | Year 6 | Week 9 | Day 3

XVI

1) $\frac{1}{3} - \frac{2}{7} = \square$

2) Is the arrow pointing to $\frac{2}{3}$?



3) $35 \times 100 = \square \times 50$

4) Name a 3-D shape that has 2 circular faces.

White Rose Maths

Challenge:

1. 56,419 – 2,136
2. 76 ÷ ☐ = 7.6
3. 137 x 7
4. The value of 1 in 91,476.
5. -4, ☐, 0, ☐, 4
6. Are 13, 15 and 17 primes?

Starter/Recap

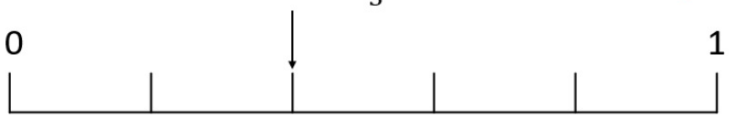
Flashback 4

Year 6 | Week 9 | Day 3

XVI

1) $\frac{1}{3} - \frac{2}{7} = \boxed{\frac{1}{21}}$

2) Is the arrow pointing to $\frac{2}{3}$? No. The arrow is pointing to $\frac{2}{5}$



3) $35 \times 100 = \boxed{70} \times 50$

4) Name a 3-D shape that has 2 circular faces. cylinder

White Rose Maths

Challenge:

1. 56,419 – 2,136 = 54,283
2. 76 ÷ [10] = 7.6
3. 137 x 7 = 959
4. The value of 1 in 91,476. 1,000
5. -4, [-2], 0, [2], 4
6. Are 13, 15 and 17 primes? No, 15 is not prime.

Assessment

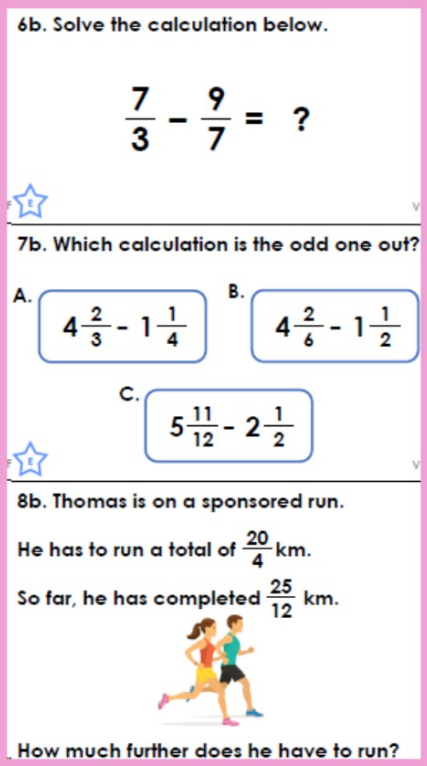
1) Convert these mixed numbers to improper fractions:

$5\frac{3}{5}$ $3\frac{8}{9}$

2) Convert these improper fractions to mixed numbers:

$\frac{102}{10}$ $\frac{124}{12}$

Challenge:



6b. Solve the calculation below.

$\frac{7}{3} - \frac{9}{7} = ?$

7b. Which calculation is the odd one out?

A. $4\frac{2}{3} - 1\frac{1}{4}$ B. $4\frac{2}{6} - 1\frac{1}{2}$

C. $5\frac{11}{12} - 2\frac{1}{2}$

8b. Thomas is on a sponsored run.

He has to run a total of $\frac{20}{4}$ km.

So far, he has completed $\frac{25}{12}$ km.

How much further does he have to run?

Assessment

1) Convert these mixed numbers to improper fractions:

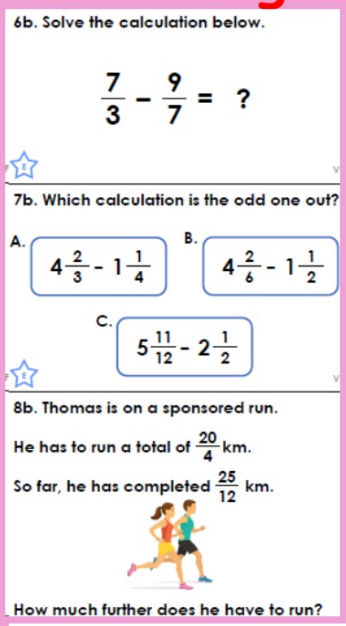
$5\frac{3}{5} = \frac{28}{5}$ $\quad 3\frac{8}{9} = \frac{35}{9}$

$5 \times \frac{5}{5} = \frac{25}{5}$ $\quad \frac{25}{5} + \frac{3}{5}$ $\quad 3 \times \frac{9}{9} = \frac{27}{9}$ $\quad \frac{27}{9} + \frac{8}{9}$

2) Convert these improper fractions to mixed numbers:

$\frac{102}{10} = 10\frac{2}{10} = 10\frac{1}{5}$ $\quad \frac{124}{12} = 10\frac{4}{12} = 10\frac{1}{3}$

Challenge:

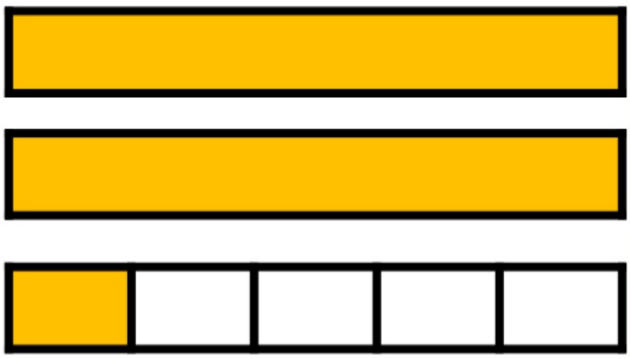


6b. $\frac{22}{21}$ or $1\frac{1}{21}$

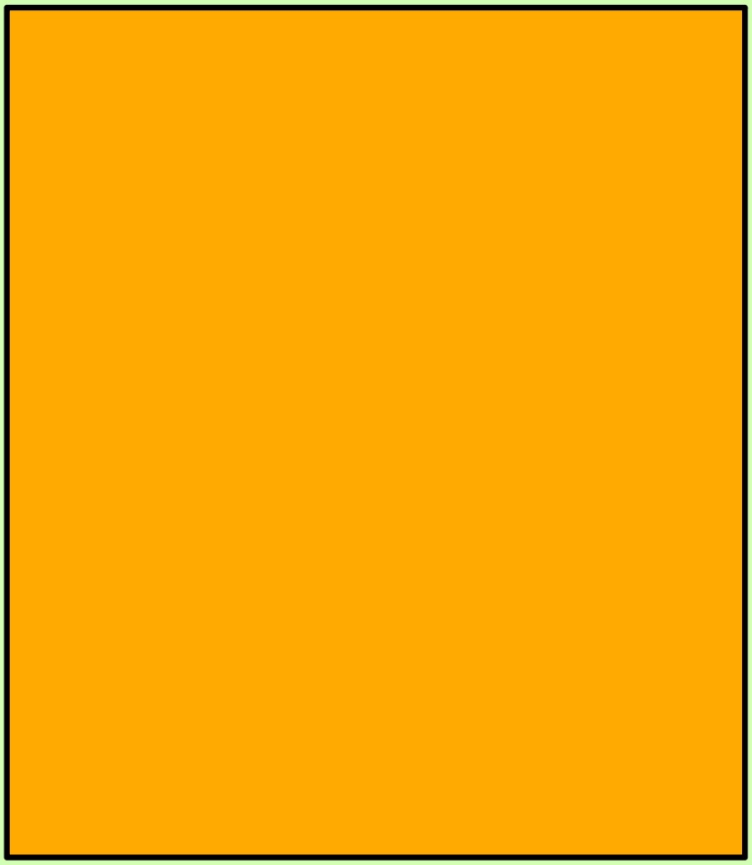
7b. B

8b. $\frac{35}{12}$ or $2\frac{11}{12}$ km.

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



I do



We do

$\frac{1}{2}$ km in length.

Have a think

$\frac{1}{2}$ km

un $1\frac{1}{8}$ km so far.

r does she have to run?

$$2\frac{1}{7} - 1\frac{1}{3}$$

he first thing you need to do?

l a common denominator.

7, 14, 21, 28, 35, 42

3, 6, 9, 12, 15, 18, 21

You do

ılate $4\frac{3}{4} - \frac{7}{12}$

Have a think

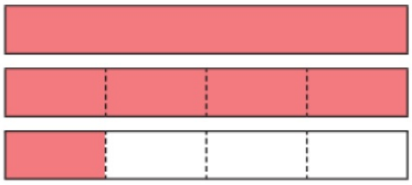
ou can calculate $2\frac{1}{4} - \frac{5}{12}$

Fluency

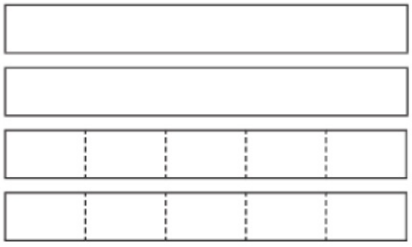
Task 1

Use the bar models to help you work out the subtractions.

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



b) $3\frac{2}{5} - \frac{3}{5}$



Task 2

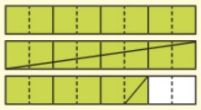
- What method would you use to work out the subtractions?

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

Compare methods with a partner.

How is this similar to addition? How is it different?

- Tom uses bar models to help work out $2\frac{3}{4} - 1\frac{3}{8}$

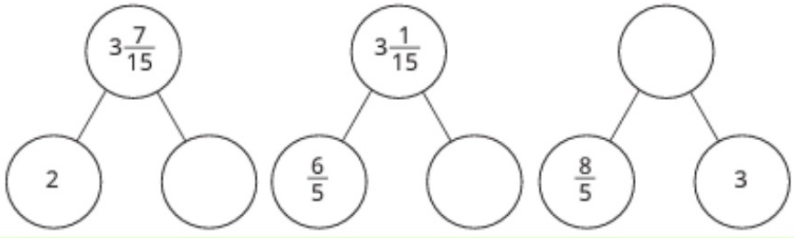


$2\frac{3}{4} - 1\frac{1}{8} = 1 + \frac{5}{8} = 1\frac{5}{8}$

Use bar models to help work out the subtractions.

$2\frac{3}{4} - 1\frac{5}{8}$ $3\frac{3}{4} - 2\frac{3}{8}$ $2\frac{1}{2} - 1\frac{3}{10}$ $4\frac{1}{3} - 2\frac{1}{3}$

Complete the part-whole models.



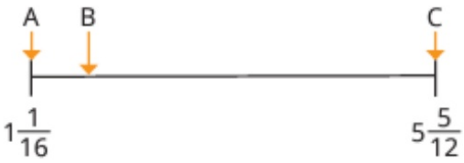
Reasoning

I cannot work out $3\frac{1}{3} - 1\frac{1}{2}$ because $\frac{1}{2}$ is greater than $\frac{1}{3}$

Is Tiny correct?

Explain your answer.

On the number line, C is $3\frac{2}{3}$ more than B.



What is the value of B?

What is the difference between A and B?

Problem Solving:

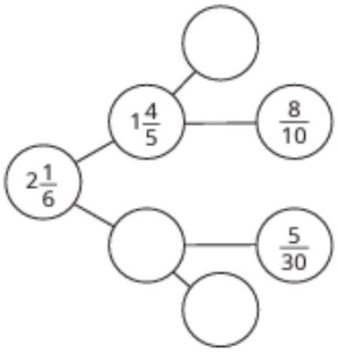
Jack is calculating $4\frac{2}{7} - 2\frac{6}{7}$

He adds $\frac{1}{7}$ to both numbers.

$4\frac{2}{7} - 2\frac{6}{7} = 4\frac{3}{7} - 3$,
so the answer is $1\frac{3}{7}$

Explain why Jack is correct.

Complete the part-whole model.



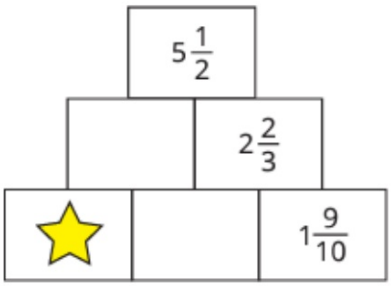
Challenge:

Filip has $4\frac{2}{5}$ kg of potatoes.

He has $2\frac{3}{4}$ kg of carrots.

How much heavier are the potatoes than the carrots?

In this addition pyramid, each number is the sum of the two numbers below it.

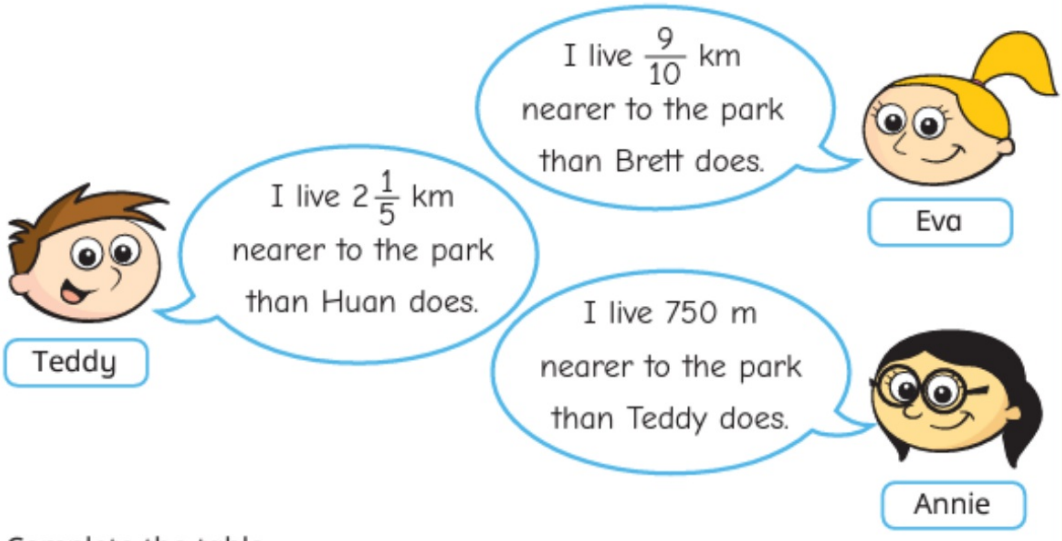


Work out the value of the star.

Gold Dot Challenge:

The table shows the distance each child lives from the park.

Name	Annie	Brett	Teddy	Huan	Eva
Distance from park		$3\frac{1}{4}$ km		$4\frac{1}{10}$ km	



Complete the table.

Plenary

$1\frac{1}{5} - \frac{1}{4} =$

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

Reflection

1. Dean and his friends are trying to solve a puzzle to set themselves free!

$3\frac{2}{5} - 1\frac{3}{7}$ $2\frac{3}{4} - 1\frac{6}{10}$ $5\frac{7}{8} - 3\frac{2}{5}$ $3\frac{1}{9} - 1\frac{2}{6}$

Each key needs an improper fraction in its simplest form to unlock the matching padlock. Identify the solutions to the calculations to help Dean and his friends escape.

How would you go about solving this question?
What steps would you use?

18.11.25

LI: To be able to solve multi-step problems.

one digit per box

Underline your date and LI

Key vocabulary

numerator, denominator, unit fraction, non-unit fraction, equivalent fractions, proper fractions, improper fractions, mixed numbers, simplify

Our Learning Journey

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Step 8	Subtract mixed numbers
Step 9	Multi-step problems

Key vocabulary

Key word	Definition	Picture/example
Numerator	The **top** part of a fraction. This is how many 'parts' of the whole you have. All of the parts MUST be the same size.	 There are 4 parts in one whole pizza. We have 3 parts.
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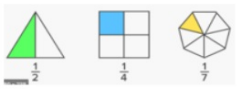
Unit fraction	A fraction where the numerator is **1**.	
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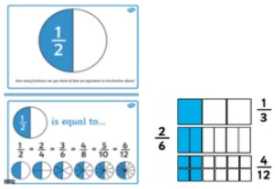
Equivalent fractions	Fractions that are **equal**. They have different numerators and denominators but represent the same value. Using a fraction wall (see below) can be useful for finding equivalent fractions.	
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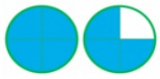
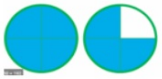
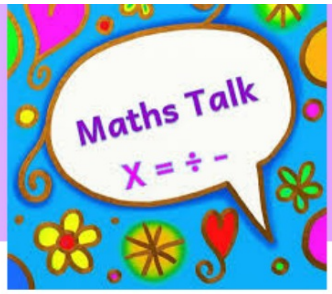
Improper fractions (improper, not inproper)	A fraction where the numerator is **more** than the denominator. This means you will have more than one whole.	 $\frac{7}{4}$
Mixed numbers	A number made up of a whole number and a proper fraction.	 $1\frac{3}{4}$

Simplify:

to find the equivalent fraction with the smallest denominator



Key questions

- What can you work out first?
- What do you need to know to work out the answer?
- Can you draw a diagram to represent the problem?
- Can you work out the answer to this part of the problem mentally or do you need another method?
- What can you do next?

Starter/Recap

Flashback 4 — Year 6 | Week 9 | Day 4

DLIX

1) $5\frac{2}{3} + 3\frac{5}{6} =$ ☐

2) Use $<$, $>$ or $=$ to compare. $\frac{5}{6}$ ◯ $\frac{5}{4}$

3) $(19 + 23) \times 21 =$ ☐

4) What do the internal angles of a triangle sum to?

White Rose Maths

Challenge:

1. 47,835 − 2,917
2. 8.4 = ☐ ÷ ☐
3. 265 x 24
4. The value of 7 in 764,503
5. ☐, -3, 1, ☐, ☐
6. List all primes up to 20.

Starter/Recap

Flashback 4

Year 6 | Week 9 | Day 4

DLIX

1) $5\frac{2}{3} + 3\frac{5}{6} =$ $9\frac{3}{6}$ or $9\frac{1}{2}$

2) Use <, > or = to compare. $\frac{5}{6}$ < $\frac{5}{4}$

3) $(19 + 23) \times 21 =$ 882

4) What do the internal angles of a triangle sum to? 180°

White Rose Maths

Challenge:

1. 47,835 − 2,917 = 44,918
2. 8.4 = 84 ÷ 10 *
3. 265 x 24 = 6,360
4. The value of 7 in 764,503. 700,000
5. -7 , -3, 1, 5 , 9
6. List all primes up to 20. 2, 3, 5, 7, 11, 13, 17, 19

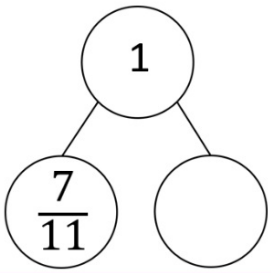
*Various answers, one example given.

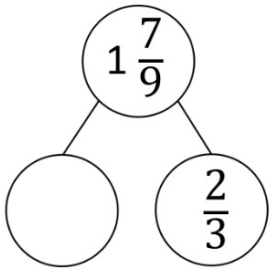
Assessment

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

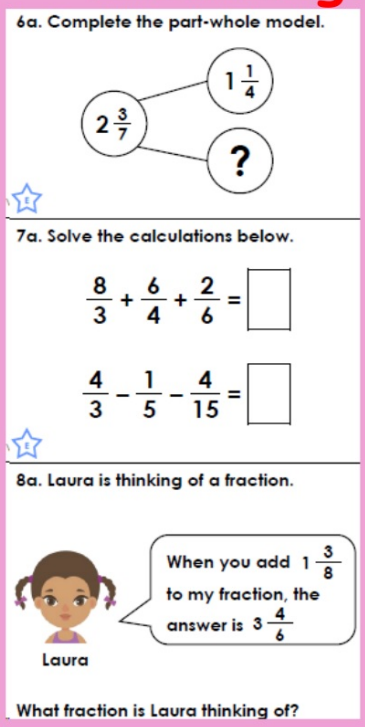
2) $4\frac{4}{7}-1\frac{2}{7}=$

3) Complete the part-whole models:





Challenge:

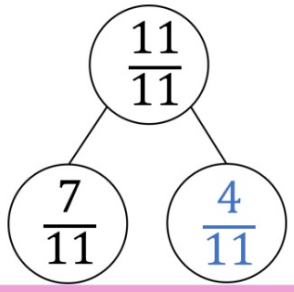


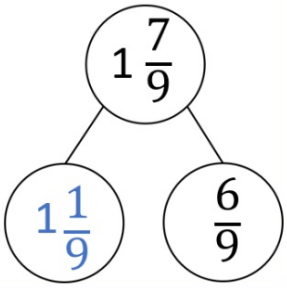
Assessment

1) $\frac{3}{5}+\frac{2}{3}=\frac{9}{15}+\frac{10}{15}=\frac{19}{15}$ or $1\frac{4}{15}$

2) $4\frac{4}{7}-1\frac{2}{7}=3\frac{2}{7}$

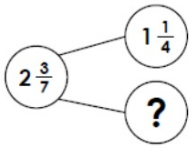
3) Complete the part-whole models:





Challenge:

6a. Complete the part-whole model.



7a. Solve the calculations below.

$\frac{8}{3}+\frac{6}{4}+\frac{2}{6}=\square$

$\frac{4}{3}-\frac{1}{5}-\frac{4}{15}=\square$

8a. Laura is thinking of a fraction.

Laura

When you add $1\frac{3}{8}$ to my fraction, the answer is $3\frac{4}{6}$

What fraction is Laura thinking of?

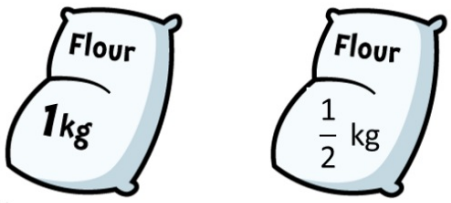
6a. $1\frac{5}{28}$

7a. $\frac{8}{3}+\frac{6}{4}+\frac{2}{6}=4\frac{6}{12}$;

$\frac{4}{3}-\frac{1}{5}-\frac{4}{15}=\frac{13}{15}$

8a. Laura's fraction is $2\frac{7}{24}$.

I have $1\frac{1}{2}$ kg of flour.



I use $\frac{5}{8}$ kg of flour to make a cake.

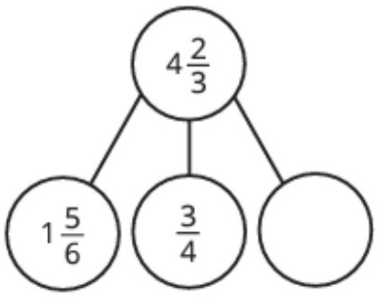
How much flour is left?

I do

We do

$$1\frac{5}{16} - \frac{7}{8}$$

Complete the part-whole model.

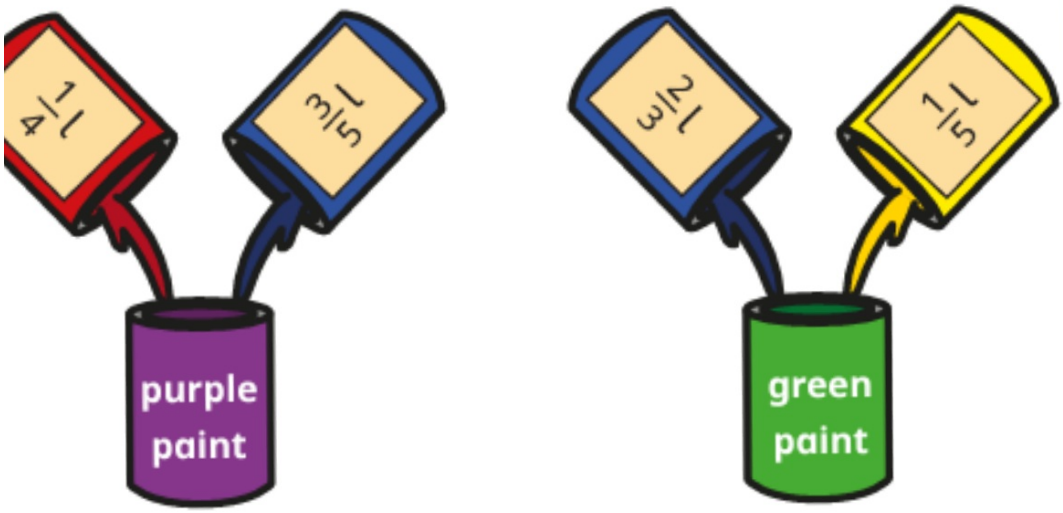


You do

$$\frac{1}{6} + 1\frac{2}{5} + \square = 3\frac{12}{15}$$

uses the following mixtures.

ı more green paint does she have than purple paint?



lit

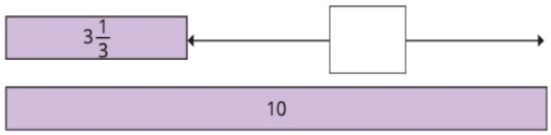
Fluency

1 Work out the calculations.

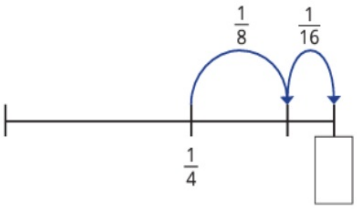
a) $\frac{2}{5}+\frac{3}{4}$ b) $2\frac{1}{4}-\frac{2}{3}$ c) $3\frac{7}{10}-2\frac{1}{4}$

2 Work out the missing values.

a)



b)

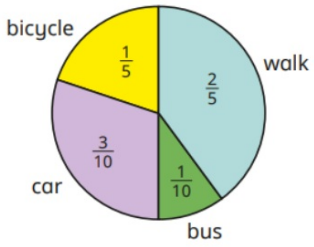


3 Work out the calculation.

$\frac{5}{6}+1\frac{2}{9}-\frac{1}{2}$

Challenge

- Children in Class 6 were asked how they travel to school.
  The results of the survey are shown in the pie chart.



  What fraction of children do not get the bus to school?

- Dr Fisher has $\frac{7}{8}$ of a tank of petrol in his car.
  He drives to see his friend and uses $\frac{1}{5}$ of a tank of petrol.
  What fraction of a tank of petrol is left in the tank?

- A family buys two equal-sized boxes of cereal.
  In one week, they eat $\frac{2}{3}$ of box A and $\frac{3}{5}$ of box B.
  How many boxes of cereal do they eat that week?
  How many boxes of cereal will they need for three weeks?

	True or false?
equal to $3\frac{1}{3} + 2\frac{3}{4}$	
ess than $4\frac{3}{4} - 1\frac{1}{3}$	
equal to $3\frac{1}{3} - 2\frac{3}{4}$	

hout working out the calculations?

addition grid.

	$\frac{1}{4}$	$= 3\frac{3}{5}$
$1\frac{3}{20}$		$= 3\frac{39}{100}$
$1\frac{1}{50}$	$1\frac{3}{100}$	$= 5\frac{9}{20}$
=	=	

Rosie has 1 litre of orange juice.

She gives Eva $\frac{1}{4}$ litre and Dexter gets $\frac{2}{5}$ litre.

Mo has 1 litre of apple juice.

He gives Jack $\frac{1}{5}$ litre and Amir gets $\frac{1}{2}$ litre.

Who has the most juice left?

Eva and Amir are working out this calculation.

$$\frac{1}{4} + \frac{25}{100} - \frac{2}{8} - \frac{9}{36}$$

This is going to be very difficult, because I cannot find a common denominator.

Eva

Ar

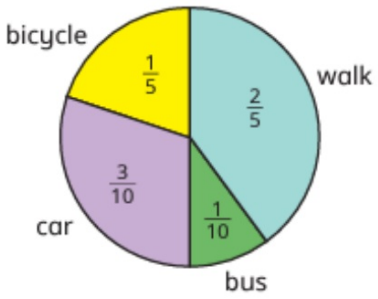
I have four an easier w

Find Amir's solution

Challenge:

Children in Class 6 were asked how they travel to school.

The results of the survey are shown in the pie chart.



What fraction of children do not get the bus to school?

Here is a vegetable patch.

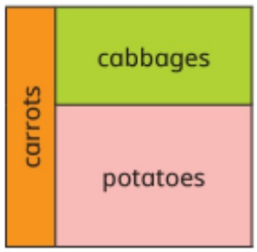
$\frac{1}{5}$ of the patch is for carrots

and $\frac{3}{8}$ of the patch is for cabbages.

What fraction of the patch is for potatoes?

How much more of the patch is for the potatoes than for the cabbages?

Give all your answers in their simplest form.



Gold Dot Challenge:

Annie and Mo are going on a trip.

Annie

My suitcase has a mass of $29\frac{1}{2}$ kg.

My suitcase is $2\frac{1}{5}$ kg lighter than Annie's.

Mo

What is the total mass of the suitcases?

There is a weight allowance of 32 kg per suitcase.

How much below the weight allowance are Annie and Mo's suitcases?

Find the value of ☀

$$♥ + 3\frac{4}{9} = 6\frac{1}{3}$$

$$8\frac{1}{10} - ♥ = ☀$$

Complete the calculation.

$$2\frac{9}{12} + 3\frac{15}{20} - 2\frac{3}{4} - 2\frac{75}{100} = \square$$

How can you make this calculation simpler?

Plenary

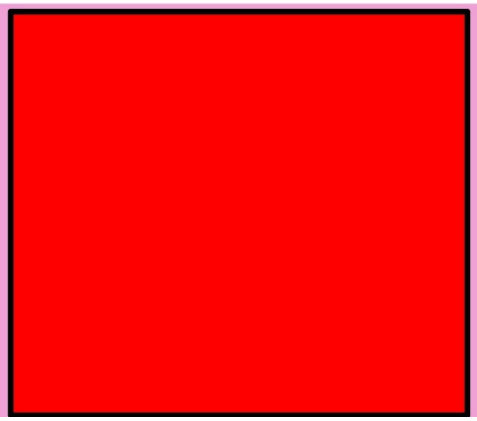
3. Calculate the fraction (proper or mixed number) represented by each shape.

★	$1\frac{3}{5}$	$\frac{2}{3}$	$= 2\frac{6}{10}$
$2\frac{1}{6}$	☾	★	$= 3\frac{7}{8}$
☾	★	♥	$= 1\frac{3}{4}$

★ =

☾ =

♥ =



Reflection

2. Gary and Neil are trying to crack a code on a safe. To do this, they need to make 2 and a quarter, but Gary can only use addition and Neil can only use subtraction. Below is as far as they have got with their calculations.

Gary

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

Neil

$$\square\frac{\square}{8} - \frac{5}{\square} = 2\frac{1}{4}$$

Explore what other numbers they could use in their statements to reach the required number to unlock the safe.

How would you go about solving this question?

What steps would you use?

29.11.25

End of Unit assessment

one digit per box

Underline your date and LI

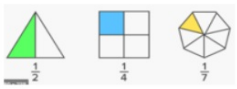
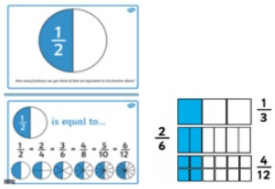
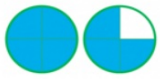
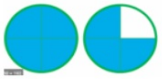
Key vocabulary

numerator, denominator, unit fraction, non-unit fraction, equivalent fractions, proper fractions, improper fractions, mixed numbers, simplify

Our Learning Journey

Step 1	Equivalent fractions and simplifying
Step 2	Equivalent fractions on a number line
Step 3	Compare and order (denominator)
Step 4	Compare and order (numerator)
Step 5	Add and subtract simple fractions
Step 6	Add and subtract any two fractions
Step 7	Add mixed numbers
Step 8	Subtract mixed numbers
Step 9	Multi-step problems

Key vocabulary

Key word	Definition	Picture/example
Numerator	The **top** part of a fraction. This is how many 'parts' of the whole you have. All of the parts MUST be the same size.	 There are 4 parts in one whole pizza. We have 3 parts.
Denominator	The **bottom** part of a fraction. This is how many 'parts' make one whole. All of the parts MUST be the same size.	
Unit fraction	A fraction where the numerator is **1**.	
Non-unit fraction	A fraction where the numerator is **greater than 1**.	
Equivalent fractions	Fractions that are **equal**. They have different numerators and denominators but represent the same value. Using a fraction wall (see below) can be useful for finding equivalent fractions.	
Proper fractions	A fraction where the numerator is **less** than the denominator.	$\frac{2}{3}$ $\frac{3}{6}$ $\frac{5}{7}$ $\frac{16}{40}$
Improper fractions (improper, not inproper)	A fraction where the numerator is **more** than the denominator. This means you will have more than one whole.	 $\frac{7}{4}$
Mixed numbers	A number made up of a whole number and a proper fraction.	 $1\frac{3}{4}$

Simplify:

to find the equivalent fraction with the smallest denominator

Starter/Recap

Flashback 4

Year 6 | Week 9 | Day 5

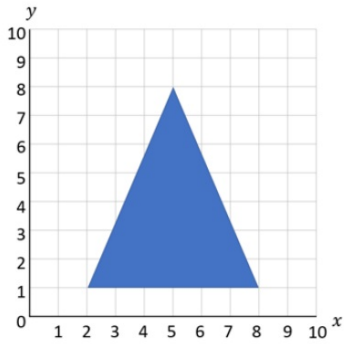
CCXLII

1) $3\frac{1}{5} - 1\frac{3}{10} = \square$

2) Which is greater, 5 or $\frac{12}{3}$?

3) Mentally calculate 6,400 ÷ 800

4) What are the coordinates of the vertices of the triangle?



White Rose Maths

Challenge:

1. 13,567 + 14,232
2. Round 612,373 to the nearest 10.
3. The value of the underlined digit: 145,643.
4. 5 □ 9 = 45
5. $\frac{5}{9} - \frac{2}{9}$
6. 5,250 ÷ 4
7. -6 + 5

Starter/Recap

Flashback 4 — Year 6 | Week 9 | Day 5

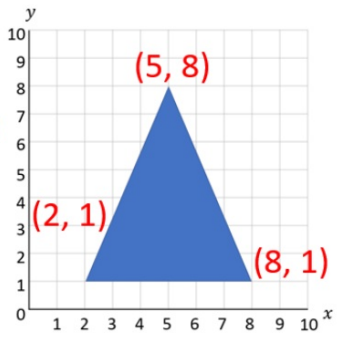
CCXLII

1) $3\frac{1}{5} - 1\frac{3}{10} = \boxed{1\frac{9}{10}}$

2) Which is greater, 5 or $\frac{12}{3}$? 5

3) Mentally calculate 6,400 ÷ 800 8

4) What are the coordinates of the vertices of the triangle?



White Rose Maths

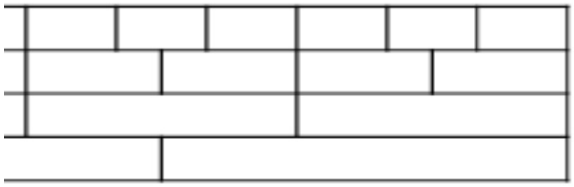
Challenge:

1. 13,567 + 14,232 = 27,799
2. Round 612,373 to the nearest 10. 612,370
3. The value of the underlined digit: 145,643. 600
4. 5 [x] 9 = 45
5. $\frac{5}{9} - \frac{2}{9} = \frac{3}{9} = \frac{1}{3}$
6. 5,250 ÷ 4 = 1,050
7. -6 + 5 = -1

A

actions.
he fraction wall to help you.

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



its simplest form is $\frac{15}{25}$
? Circle your answer.

es No

nswer.

2 marks

1 mark

3

What number is the arrow pointing

Draw an arrow to the number that i

What number is $1\frac{1}{2}$ greater than A?

4 Tick the statements that are true.

$\frac{3}{5}$ is greater than $\frac{3}{7}$ $1\frac{3}{8}$ is less

$\frac{2}{8}$ is equal to $\frac{5}{20}$ $2\frac{1}{4}$ is gre

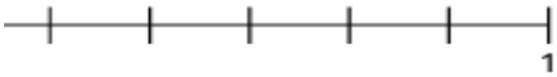
5 Order the fractions from smallest to

$\frac{3}{4}$ $\frac{5}{8}$ $\frac{3}{8}$ $\frac{1}{16}$

$\frac{5}{6} - \frac{3}{4} =$

3 marks

om each fraction to its position
line.



$\frac{33}{66}$ $\frac{29}{29}$

2 marks

her book on Monday.

her book on Tuesday.
she reads the rest of the book.

of the book did she read on

2 marks

9 Three friends share a chocolate bar.
Eva gets $\frac{3}{9}$, Jack gets $\frac{4}{12}$ and Dora ge

Did they share the chocolate bar equ
Explain your answer.

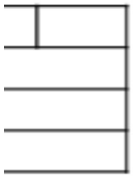
10 A paper circle has an area of $18\frac{1}{6}$ cm
Max cuts a triangle from the circle.
The triangle has an area of $5\frac{2}{3}$ cm^2

What is the area of the paper that is

End of unit assessment - Answers

End of unit assessment – Answers

1.



2 marks

3

What number is the arrow pointing to?

$5\frac{1}{4}$ — 1 mark

Draw an arrow to the number that is $\frac{3}{4}$ less than A. — 1 mark

What number is $1\frac{1}{2}$ greater than A?

$6\frac{3}{4}$ — 1 mark

4 Tick the statements that are true.

$\frac{3}{5}$ is greater than $\frac{3}{7}$ ✓

$1\frac{3}{8}$ is less than $\frac{7}{8}$

$\frac{2}{8}$ is equal to $\frac{5}{20}$ ✓

$2\frac{1}{4}$ is greater than $\frac{11}{4}$

2 marks

5 Order the fractions from smallest to greatest.

$\frac{3}{4}$ $\frac{5}{8}$ $\frac{3}{8}$ $\frac{1}{16}$

1 3 5 3

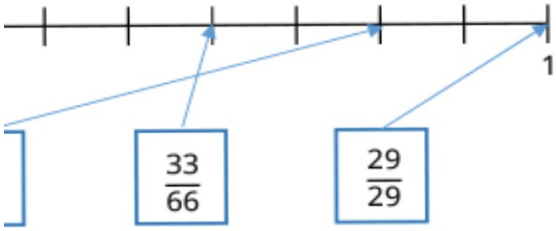
2 marks

$\frac{7}{9}$

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

$= 4\frac{1}{10}$

ows from each fraction to its position
umber line.



3 marks

ls $\frac{1}{4}$ of her book on Monday.
ls $\frac{1}{3}$ of her book on Tuesday.
nesday she reads the rest of the book.

ction of the book did she read on
day?
for $\frac{5}{12}$

for correct method

$\frac{5}{12}$

2 marks

2 marks

Eva gets $\frac{3}{9}$, Jack gets $\frac{4}{12}$ and Dora gets $\frac{7}{21}$

Did they share the chocolate bar equally?
Explain your answer.

e.g. "Yes, because all the fractions are equal to one third"

10 A paper circle has an area of $18\frac{1}{6}$ cm².
Max cuts a triangle from the circle.
The triangle has an area of $5\frac{2}{3}$ cm²

What is the area of the paper that is left?

2 marks for $12\frac{1}{2}$

1 mark for correct method

$12\frac{1}{2}$

Plenary

The numbers in this sequence increase by the same amount each time.

Write the missing numbers.

	1	$1\frac{5}{8}$	$2\frac{1}{4}$	

1 mark

1 mark

2 0.1 1.25

LI: To be able to multiply fractions by integers

one digit per box

Underline your date and LI

Key vocabulary

numerator, denominator, unit fraction, non-unit fraction, equivalent fractions, proper fractions, improper fractions, mixed numbers, simplify

RECAP - integer

Our Learning Journey

Step 1	Multiply fractions by integers
Step 2	Multiply fractions by fractions
Step 3	Divide a fraction by an integer
Step 4	Divide any fraction by an integer
Step 5	Mixed questions with fractions
Step 6	Fraction of an amount
Step 7	Fraction of an amount – find the whole

Key vocabulary

Key word	Definition	Picture/example
Numerator	The **top** part of a fraction. This is how many 'parts' of the whole you have. All of the parts MUST be the same size.	 There are 4 parts in one whole pizza. We have 3 parts.
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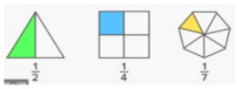
Unit fraction	A fraction where the numerator is **1**.	
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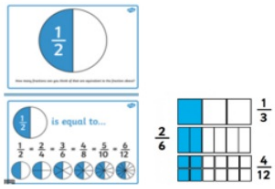
Equivalent fractions	Fractions that are **equal**. They have different numerators and denominators but represent the same value. Using a fraction wall (see below) can be useful for finding equivalent fractions.	
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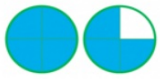
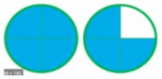
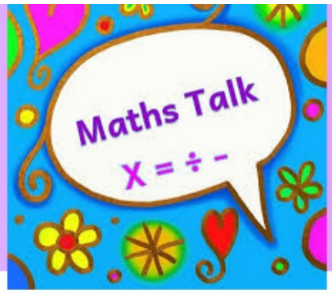
Improper fractions (improper, not inproper)	A fraction where the numerator is **more** than the denominator. This means you will have more than one whole.	 $\frac{7}{4}$
Mixed numbers	A number made up of a whole number and a proper fraction.	 $1\frac{3}{4}$

Simplify:

to find the equivalent fraction with the smallest denominator



Key questions

- How is multiplying fractions by integers similar to addition of fractions? How is it different?
- What happens to the denominator when you multiply a fraction by an integer?
- Do you find it easier to partition the mixed number first or to convert it to an improper fraction?
- Is $\frac{2}{3} \times 7$ equal to $7 \times \frac{2}{3}$? Why?

Starter/Recap

Flashback 4

Year 6 | Week 10 | Day 1

XXX

1) Kim and Mo are sharing 4 pizzas.
Kim eats $\frac{5}{6}$ of a pizza.
Mo eats $1\frac{1}{3}$ pizzas.
How many pizzas are left?

2) $\frac{3}{4} + \frac{3}{5} - \frac{3}{10} =$ ☐

3) $98 + 2 \times 10 =$ ☐

4) 100 km = ☐ m

Challenge:

1. 24,591 + 15,523
2. Round 144,562 to the nearest 100.
3. The value of the underlined digit: 3<u>7</u>6,499
4. ☐ ÷ 12 = 6
5. $\frac{5}{6} - \frac{1}{3}$
6. 5,105 ÷ 5
7. −3 − 7

Starter/Recap

Flashback 4 — Year 6 | Week 10 | Day 1

XXX

1) Kim and Mo are sharing 4 pizzas.
Kim eats $\frac{5}{6}$ of a pizza.
Mo eats $1\frac{1}{3}$ pizzas.
How many pizzas are left? $1\frac{5}{6}$

2) $\frac{3}{4} + \frac{3}{5} - \frac{3}{10} = \frac{15}{20} + \frac{12}{20} - \frac{6}{20} = \frac{21}{20} = 1\frac{1}{20}$

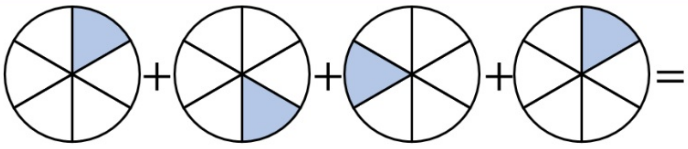
3) $98 + 2 \times 10 =$ 118

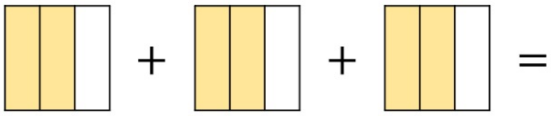
4) 100 km = 10,000 m

Challenge:

1. 24,591 + 15,523 = 40,114
2. Round 144,562 to the nearest 100. 144,600
3. The value of the underlined digit: 3<u>7</u>6,499
   70,000
4. $\boxed{72} \div 12 = 6$
5. $\frac{5}{6} - \frac{1}{3} = \frac{3}{6} = \frac{1}{2}$
6. 5,105 ÷ 5 = 1,021
7. −3 − 7 = −10

Assessment

1) 

2) 

3) Two sevenths + two sevenths + two sevenths =

4) $\frac{3}{8}+\frac{3}{8}+\frac{3}{8}+\frac{3}{8}+\frac{3}{8}=$

Challenge:

10a. Create an image to find the answer to the calculation.

$\frac{8}{9} \times 7 = \square$

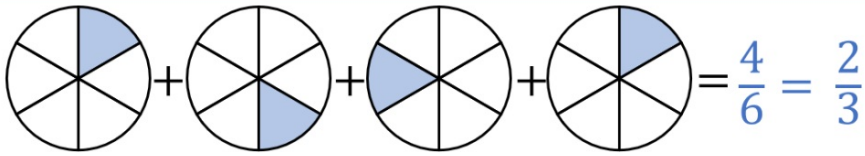
11a. Answer the question below.

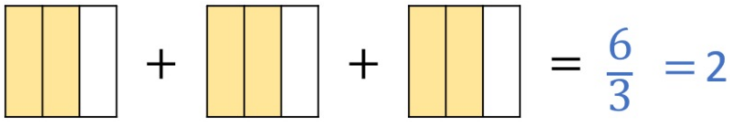
What are 8 lots of $2\frac{7}{12}$?

12a. True or false?

$8 \times 1\frac{5}{13} = \frac{23}{14} \times 7$

Assessment

1)  $= \frac{4}{6} = \frac{2}{3}$

2)  $= \frac{6}{3} = 2$

3) Two sevenths + two sevenths + two sevenths =

Six sevenths $\frac{6}{7}$

4) $\frac{3}{8} + \frac{3}{8} + \frac{3}{8} + \frac{3}{8} + \frac{3}{8} = \frac{15}{8}$ or $1\frac{7}{8}$

Challenge:

10a. Create an image to find the answer to the calculation.

$\frac{8}{9} \times 7 = \square$

11a. Answer the question below.

What are 8 lots of $2\frac{7}{12}$?

12a. True or false?

$8 \times 1\frac{5}{13} = \frac{23}{14} \times 7$

10a. $6\frac{2}{9}$

11a. $20\frac{2}{3}$

12a. False; <

I do

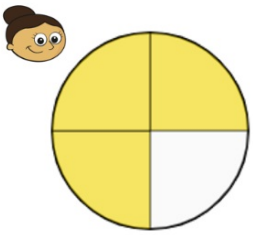
There are 3 flowers in a vase.

If there are 4 vases, how many flowers will there be?

There are 3 pencils in a pot.

If there are 4 pots, how many pencils will there be?

Each person gets 3 quarters of a cake.

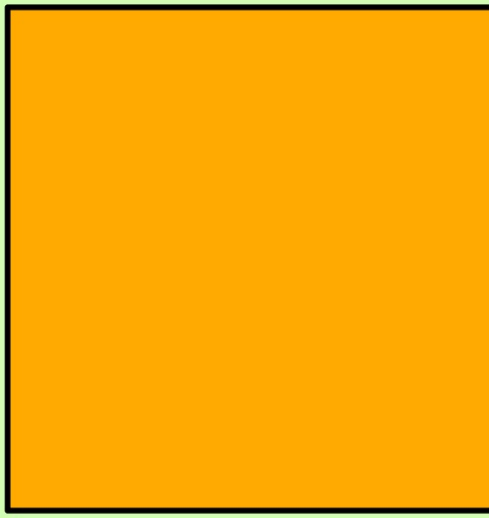


If there are 4 people, how much cake will be needed?

3 sevenths × 4 = ☐ sevenths

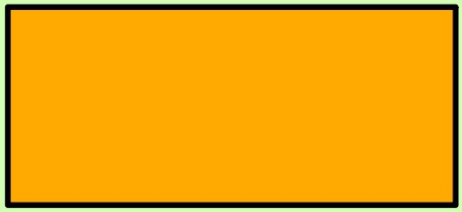
$$\frac{3}{7} \times 4 = \frac{\square}{7}$$

We do



You do

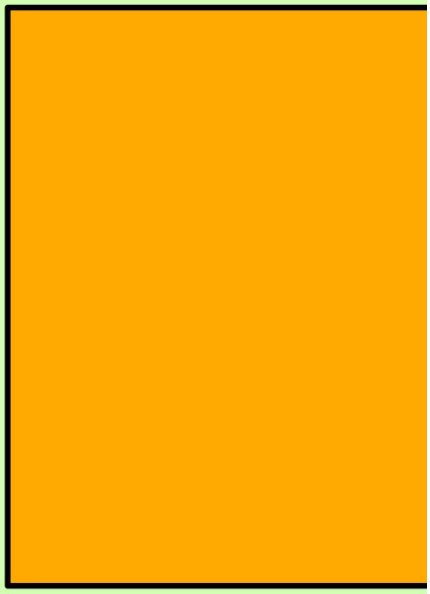
$$3\frac{1}{2} \times 3 =$$



Fill in the missing number.

Have a think

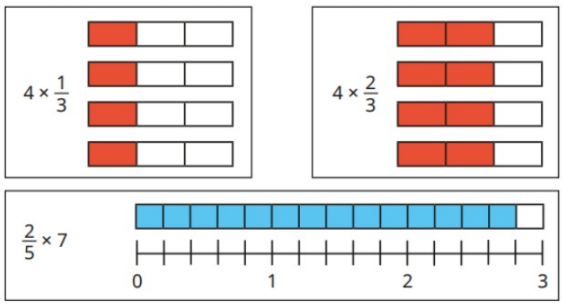
$$3\frac{\square}{9} \times 4 = 13\frac{7}{9}$$



Fluency

Task 1

- Use the diagrams to work out the multiplications.



- Complete the calculations.

▸ $\frac{3}{5} \times \_\_\_\_ = \frac{9}{5} = \_\_\_\_$ ▸ $\frac{2}{7} \times \_\_\_\_ = \frac{\square}{7} = 1\frac{1}{7}$

- Huan works out $4 \times \frac{7}{8}$

$$4 \times \frac{7}{8} = \frac{28}{8} = 3\frac{4}{8}$$

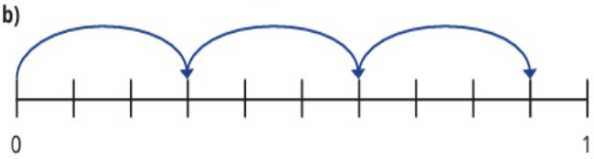
How can you improve Huan's answer?

Task 2

1 Work out the calculations.

a) $\frac{2}{7} \times 2$

b)



$3 \times \frac{3}{10}$

2 **a)** Draw bar models to show $\frac{2}{5} \times 4$

b) Work out the multiplication.

$\frac{2}{5} \times 4$

Reasoning

Huan works out $4 \times \frac{7}{8}$

$$4 \times \frac{7}{8} = \frac{28}{8} = 3\frac{4}{8}$$

How can you improve Huan's answer?

Match the calculations.

$\frac{2}{3} + \frac{2}{3}$	$\frac{1}{2} \times 6$
$\frac{1}{4} \times 24$	$18 \times \frac{1}{4}$
$\frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4}$	$\frac{1}{6} \times 10$
$\frac{5}{12} \times 4$	$12 \times \frac{1}{2}$
$1\frac{1}{2} \times 3$	$\frac{1}{3} \times 4$

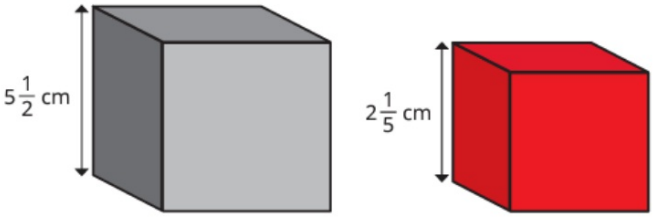
Problem Solving:

Tommy's dog eats $3\frac{1}{2}$ tins of food a week.

How many tins does she eat in a year?

A grey block is $5\frac{1}{2}$ cm tall.

A red block is $2\frac{1}{5}$ cm tall.



Jack builds a tower using grey blocks.

Alex builds a tower using red blocks.

The towers are exactly the same height.

How many blocks could there be in each tower?

Challenge:

nswer as a mixed number in its simplest form.

d) $2\frac{2}{5} \times 5$

e) $7 \times 3\frac{1}{2}$

f) $\frac{11}{15} \times 7$

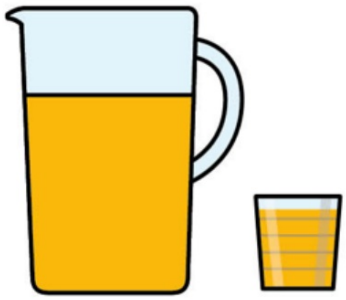
nissing numbers.

$\square \times 3 = 6\frac{6}{7}$

b) $2\frac{\square}{8} \times 3 = 7\frac{1}{2}$

There are 12 children in a class.

The teacher has 4 litres of orange juice.



Each child gets $\frac{1}{5}$ litre of orange juice.

How much orange juice will be left over?

Gold Dot Challenge:

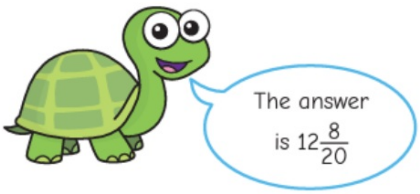
There are 12 children in a class.

The teacher has 4 litres of orange juice.

Each child gets $\frac{1}{5}$ litre of orange juice.

How much orange juice will be left over?

Tiny is working out $4 \times 3\frac{2}{5}$



Is Tiny correct?

Explain your reasoning.

A classroom desk is $1\frac{1}{3}$ m long.

The classroom is 6 m wide.

Will 5 desks fit side by side in the classroom?

Explain your answer.

$$A \times 3\frac{1}{5} = B$$

B is an integer.

Work out possible values of A and B.

Plenary

$$\frac{4}{6} \times \frac{3}{5} =$$

$$1\frac{1}{2} \times 57 =$$

Reflection

2. Tom is saving up his pocket money for his next school trip.

Tom

I get £10 pocket money a week. I only want to save part of this each week until I have between £35 and £40 for my school trip.

Tom only wants to save whole pounds each week. Explore the different amounts that Tom could save, and how many weeks it would take to save that amount so that the total saved is between £35 and £40.

Number of Weeks		Number of Pounds		Total Saved
	x		=	

How would you go about solving this question?

What steps would you use?