Year 6 SATs Booster

Maths 5

Fractions, Decimals and Percentages Part 1

Objectives:

- **Reduce a fraction to its simplest form by cancelling common factors in the numerator and denominator**

Vocabulary:

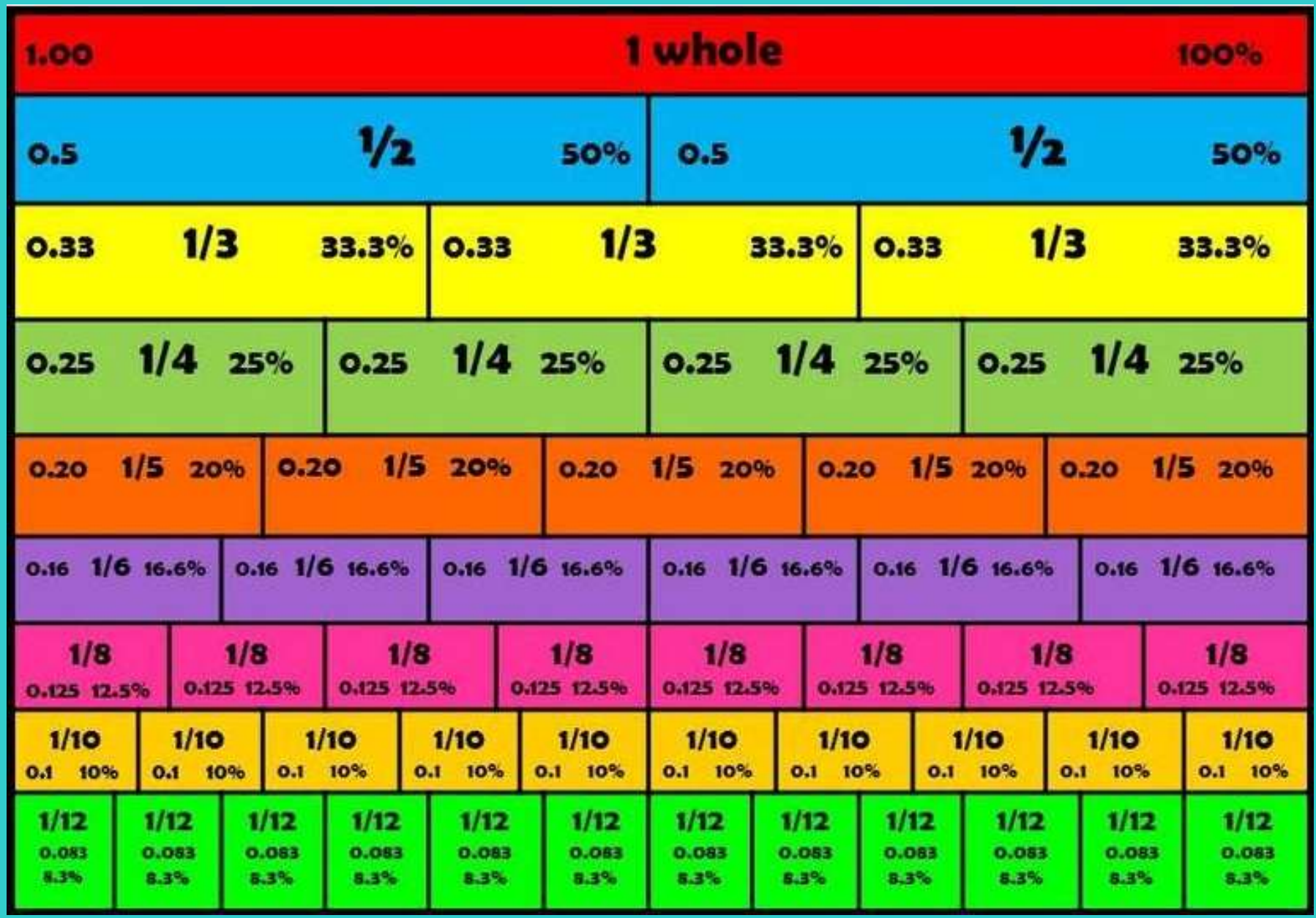
numerator

fraction

cancel

equivalent

denominator


1.00
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1/2
50%
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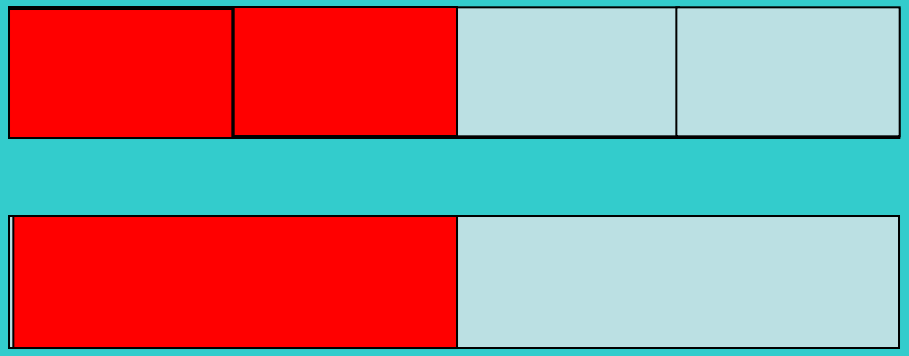
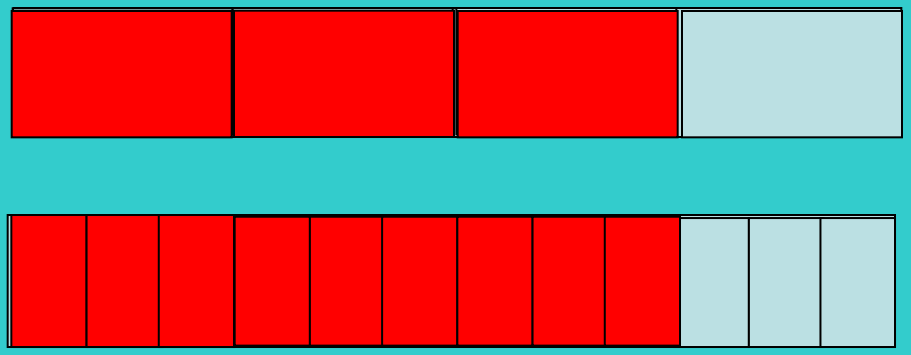


$$\frac{2}{4} = \frac{1}{2}$$

$$\frac{2 \div 2}{4 \div 2} = \frac{1}{2}$$

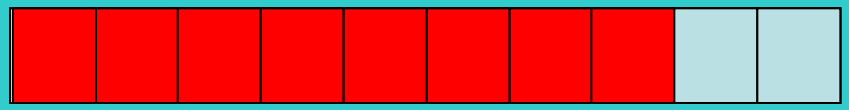
This is called cancelling



$$\frac{9}{12} = \frac{3}{4}$$

$$\frac{9 \div 3}{12 \div 3} = \frac{3}{4}$$

cancelling

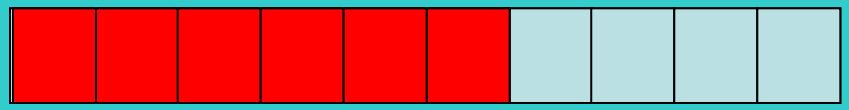


$$\frac{8}{10}$$

$$\frac{8 \div 2}{10 \div 2} = \frac{4}{5}$$

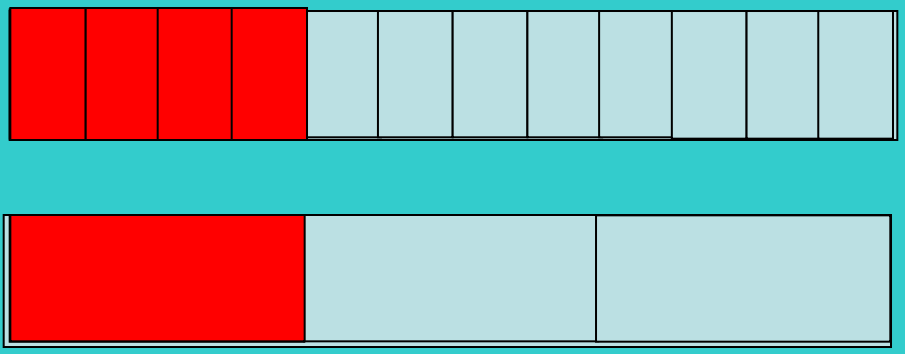
$$\frac{4}{10}$$

$$\frac{4 \div 2}{10 \div 2} = \frac{2}{5}$$



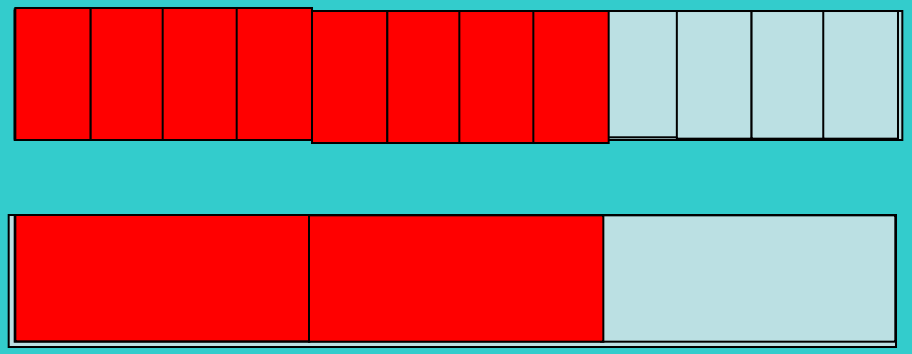
$$\frac{6}{10}$$

$$\frac{6 \div 2}{10 \div 2} = \frac{3}{5}$$



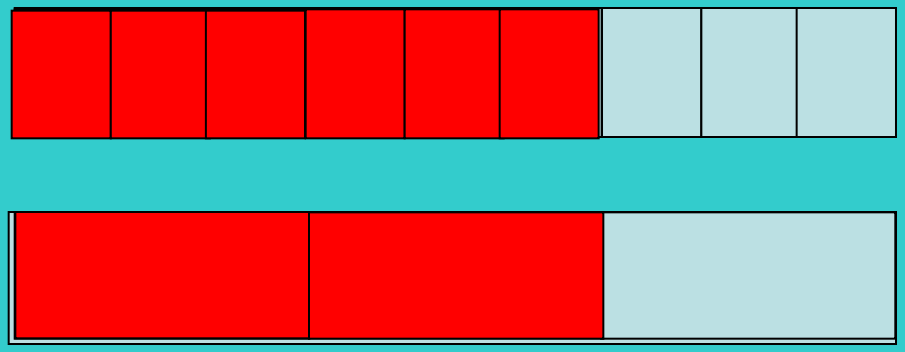
$$\frac{4}{12}$$

$$\frac{4 \div 4}{12 \div 4} = \frac{1}{3}$$



$$\frac{8}{12}$$

$$\frac{8 \div 4}{12 \div 4} = \frac{2}{3}$$



$$\frac{6}{9}$$

$$\frac{6 \div 3}{9 \div 3} = \frac{2}{3}$$

$$\frac{5}{20}$$

$$\frac{5 \div 5}{20 \div 5} = \frac{1}{4}$$

$$\frac{5}{10}$$

$$\frac{5 \div 5}{10 \div 5} = \frac{1}{2}$$

$$\frac{6}{8}$$

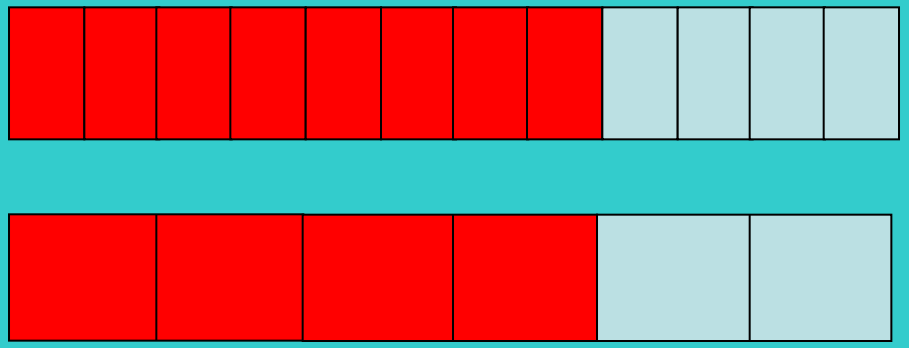
$$\frac{6 \div 2}{8 \div 2} = \frac{3}{4}$$

$$\frac{30}{50}$$

$$\frac{30 \div 10}{50 \div 10} = \frac{3}{5}$$

$$\frac{40}{60}$$

$$\frac{40 \div 20}{60 \div 20} = \frac{2}{3}$$



$$\frac{8}{12} \quad \frac{8 \div 4}{12 \div 4} = \frac{2}{3}$$

$$\frac{8}{12} \quad \frac{8 \div 2}{12 \div 2} = \frac{4}{6} \qquad\qquad \frac{4}{6} \quad \frac{4 \div 2}{6 \div 2} = \frac{2}{3}$$

Year 6 SATs Booster

Maths 5

Fractions, Decimals and Percentages Part 2

Objectives:

- **Use the equivalence of fractions, decimals and percentages to compare proportions.**

- **Calculate percentages and fractions of an amount.**

Vocabulary:

Equivalent

recurring decimal

multiple

Find the equivalents.

10%	30%	75%	0.1
0.75	50%	0.3	25%
0.25	$^{1}/_{10}$	$^{3}/_{4}$	$^{3}/_{10}$
1%	$^{1}/_{4}$	0.5	$^{1}/_{2}$

Were you right?

10%	30%	75%	0.1
0.75	50%	0.3	25%
0.25	$^{1}/_{10}$	$^{3}/_{4}$	$^{3}/_{10}$
1%	$^{1}/_{4}$	0.5	$^{1}/_{2}$

Find 50% (or half) of each number:

2	36	10	40
70	15	90	28
50	700	20	100
6	48	140	8

How did you do?

1	18	5	20
35	7.5	45	14
25	350	10	50
3	24	70	4

Find 25% (or one quarter) of each of the following numbers:

2	36	10	40
70	15	90	28
50	700	20	100
6	48	140	8

How did you do?

0.5	9	2.5	10
17.5	3.75	22.5	7
12.5	1750	5	250
1.5	12	35	2

How many times does 10% fit into 100%?

What fraction is 10% the same as?

How can you find 10% of a number?

Explain how to find 10% of 450.

How many times does 10% fit into 100%?

There are 10 lots of 10% in 100%.

What fraction is 10% the same as?

10% is the same as $\frac{1}{10}$

How can you find 10% of a number?

To find 10% we need to divide by 10.

Explain how to find 10% of 450.

450 divided by 10 is 45 – move each digit one column to the right.

Find 10% (or one tenth) of each of the following amounts:

20	120	150	100
270	200	550	600
220	900	50	40
300	70	1200	7000

How did you do

2	12	15	10
27	20	55	60
22	90	5	4
30	7	120	700

If I can find 10% what other percentages can I find?

To find 20% we can do 2 x 10%

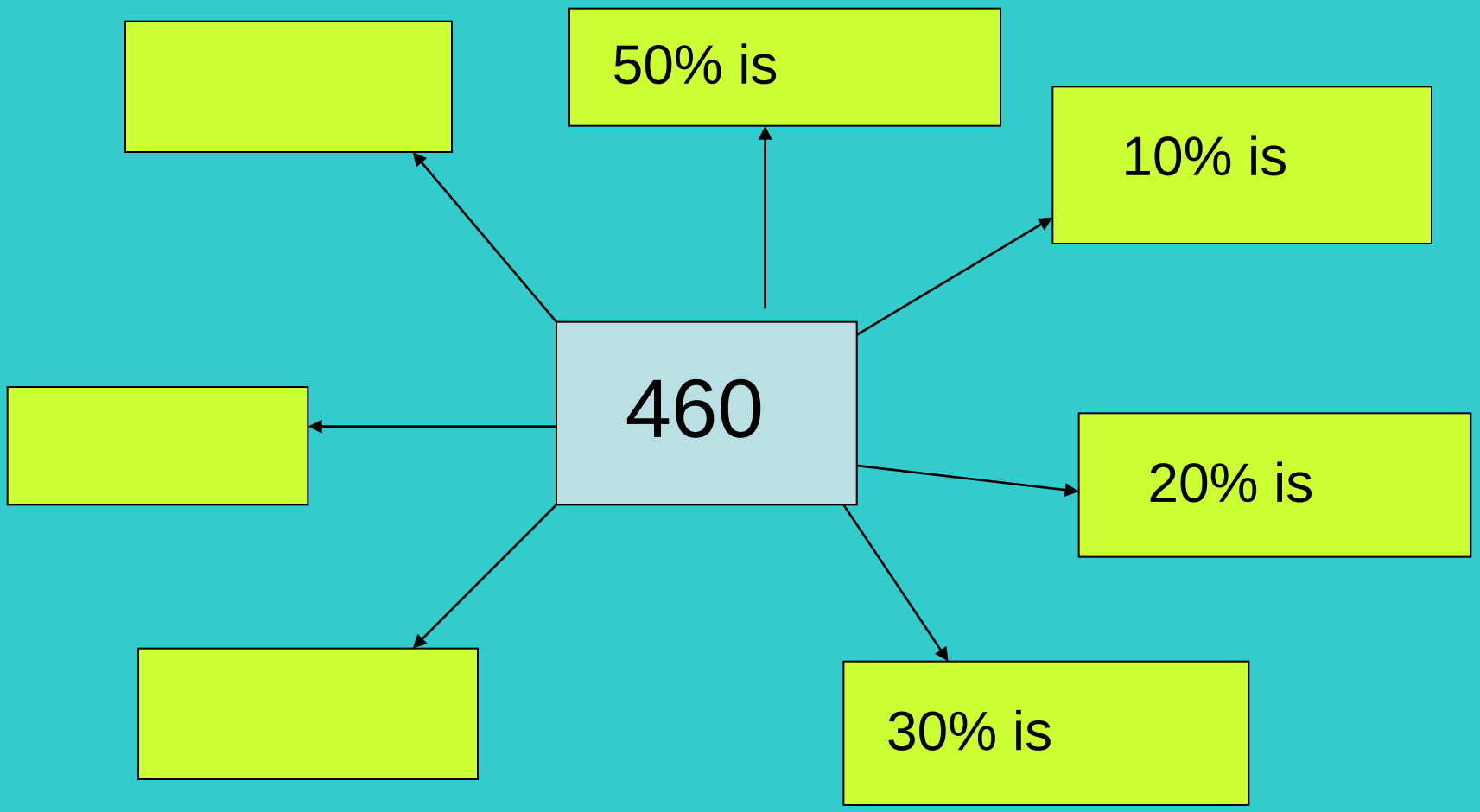
To find 30% we can do……

To find 40% we can do …….

How would you find 50%?

Which is the easiest way to find 50%?

Find 10% and then use it to find the other amounts.



40	500	120	70
50	250	720	60
90	140	860	1800
20	5000	300	480

50 is 20% of 250

120 is 25% of 480

90 is 5% of 1800

70 is 50% of 140

60 is 50% of 120

120 is 40% of 300

250 is 50% of 500

90 is 75% of 120

Find at least three more percentage relationships on this board.

What is 10% of £380?

First find 10% of £380

10% of £380 = £38

How can you use the answer for 10% to find 20%?

20% = 10% + 10% = £38 + £38 = £76

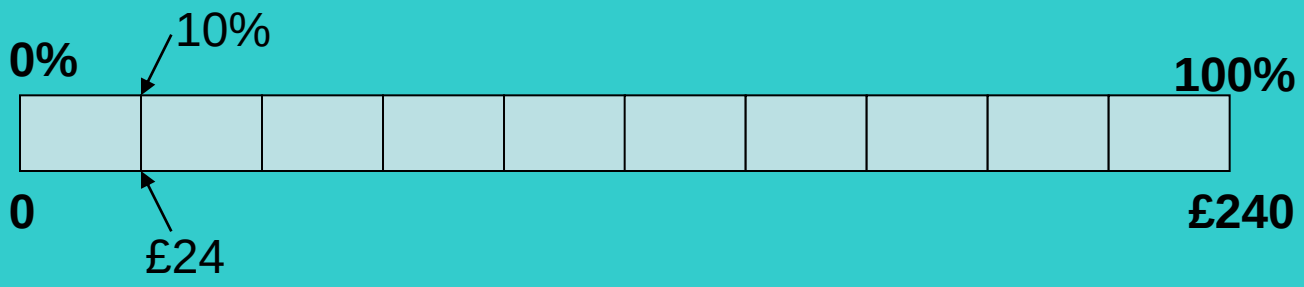
How can you use 10% to find 30%?

30% = 10% + 10% + 10% = 3 x £38 = £114

How many times will 5% fit into 10%?

How can you work out 5% if you know 10%?

Find 5% of £240 – explain how you got your answer.



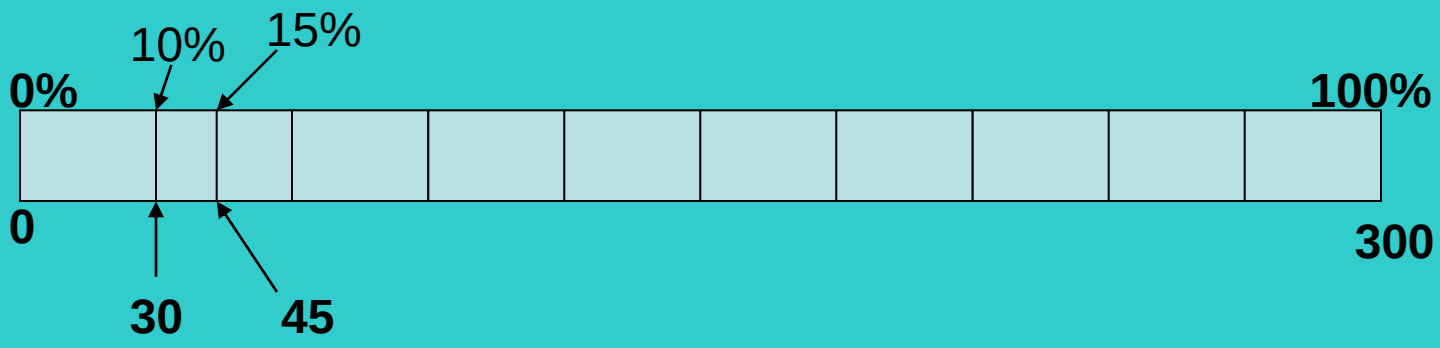
10% of £720 is £72 **5% is half of 10%** **so 5% of £720 is £36**

Find 5% of each amount

400	50	1200	700
500	24	72	600
80	140	40	1800
20	800	300	120

How can you find 15% of an amount?

15% can be found by adding 10% and 5% together.



10% of 300 is 30 **5% of 300 is 15** **So 15% is 30 + 15 = 45**

Find 15% of each number

400	50	1200	700
500	24	72	600
80	140	40	1800
20	800	300	120

If I can find 10% how can I find 1%?

Find 1% of £350

Method 1

1% is the same as 1/100th so I can divide by 100

£350 ÷ 100 = £3.5 written £3.50

Method 2

1% is 10% divided by 10.

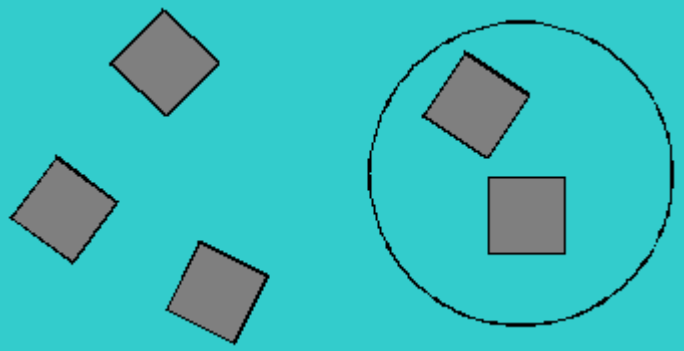
10% of £350 is £35 so 1% is £35 ÷10 = £3.5 or £3.50

Find 1% of each number

40	500	120	70
50	250	720	60
90	140	860	1800
20	5000	300	480

Level 3 SATs Questions

What fraction of these tiles are circled?



Answer:

$$\frac{2}{5}$$

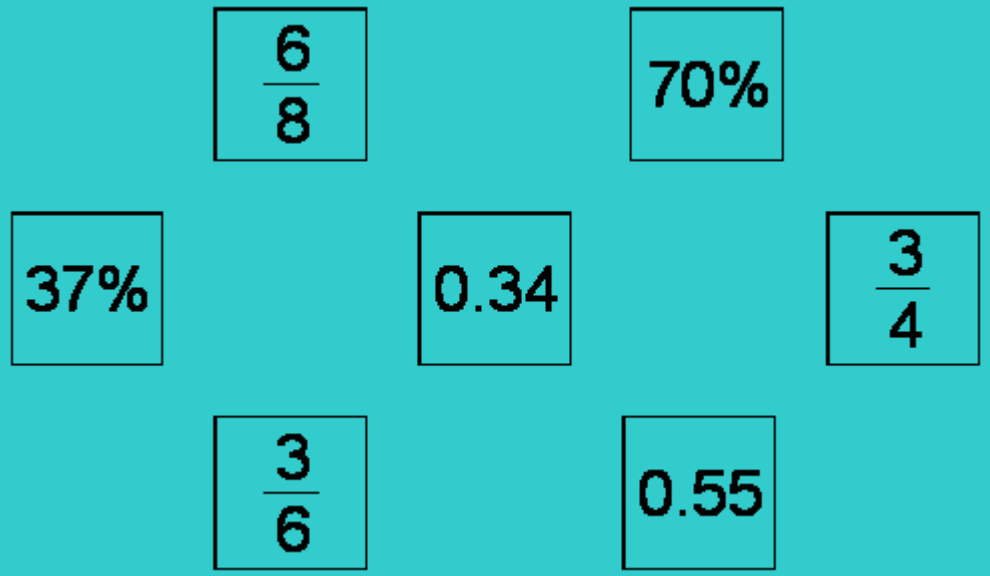
$\frac{3}{8}$ of a class are boys.

What **fraction** of the class are girls?

Answer:

$\frac{5}{8}$

Tick each of the cards that shows **more** than a half.



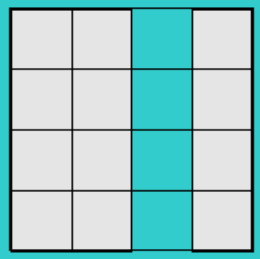
Answer:

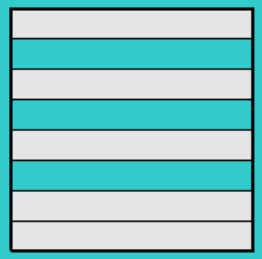
Circles drawn around **all** of

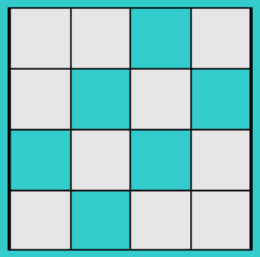
$\frac{6}{8}$ $\frac{3}{4}$ 70% 0.55

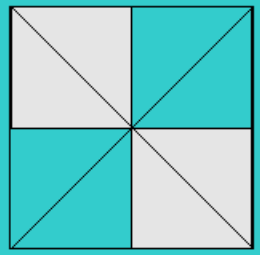
If extra circles are drawn, do not award the mark unless the intention is clear. Accept any other clear way of indicating these amounts.

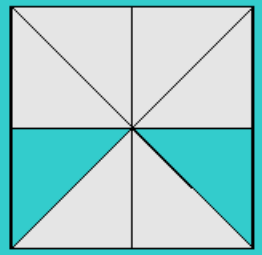
Tick (✓) the **two** shapes that have **three-quarters** shaded



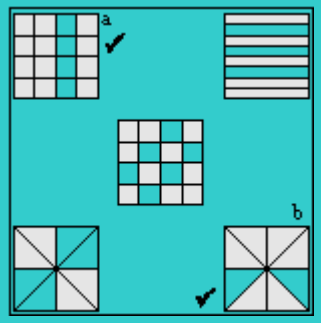






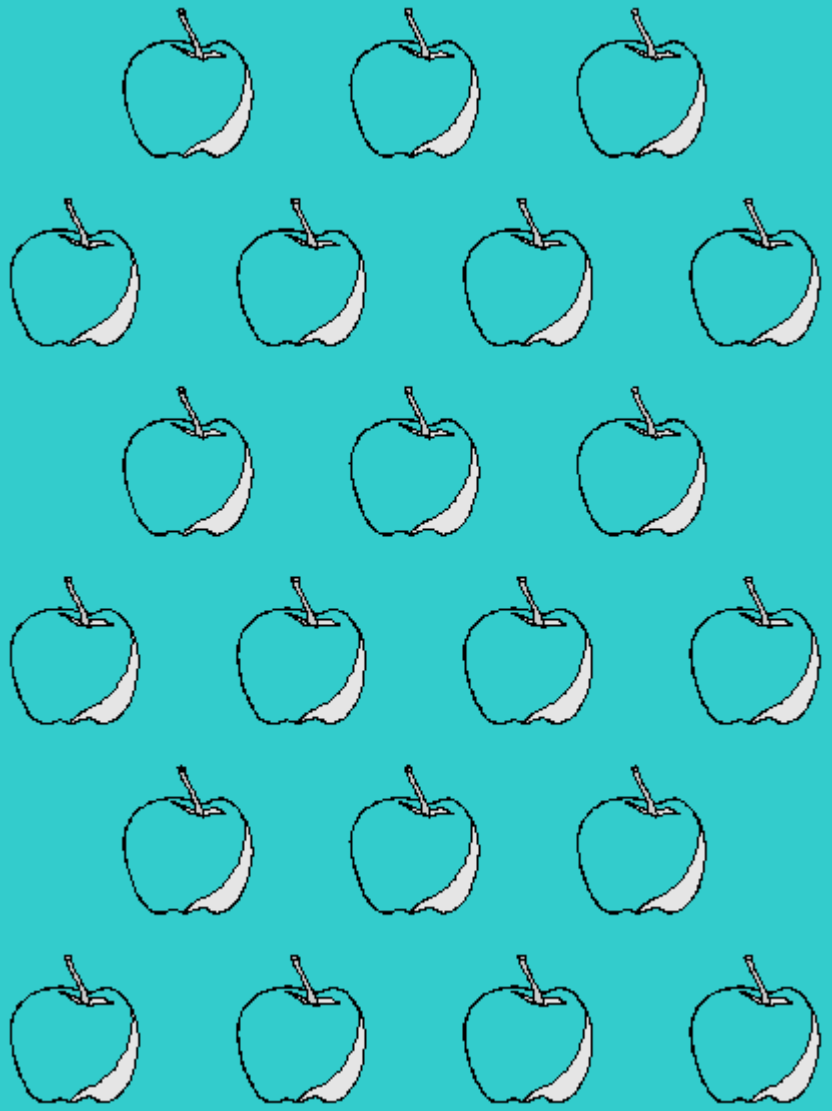


Answer:



If extra shapes are ticked, do not award the mark unless the child clearly indicates which are his or her final selection.

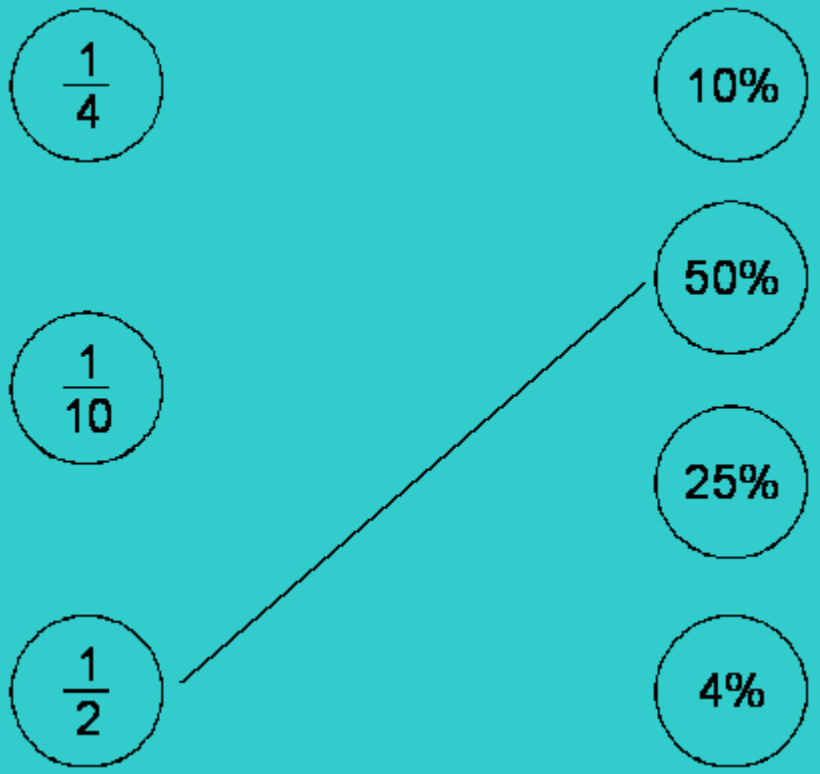
Here are 21 apples.
Put a ring around **one third** of them.



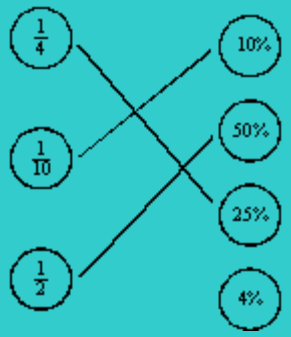
Answer:

Ring drawn enclosing 7 apples.
Accept any other clear way of indicating 7 apples.

Draw a line to join each fraction to a percentage of the same value.

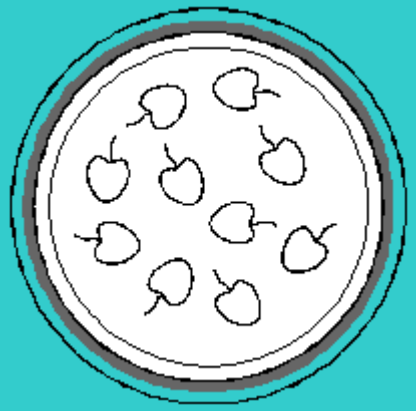


Answer:



Both correct for 1 mark.

Jack ate **half** the cherries on the plate.
These are the cherries that were **left**.



How many cherries were on Jack's plate **before** he ate half of them?

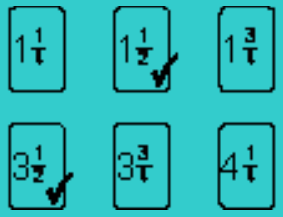
Answer:

20 (cherries)

Tick (✓) **two** cards that give a **total of 5**

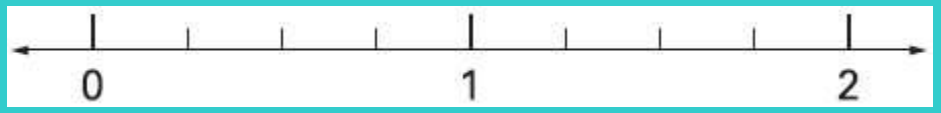
$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$
$3\frac{1}{2}$	$3\frac{3}{4}$	$4\frac{1}{4}$

Answer:



Accept alternative unambiguous indications such as circling or a line joining a correct pair of cards.

Draw an arrow (↓) on the number line to show $1\frac{3}{4}$

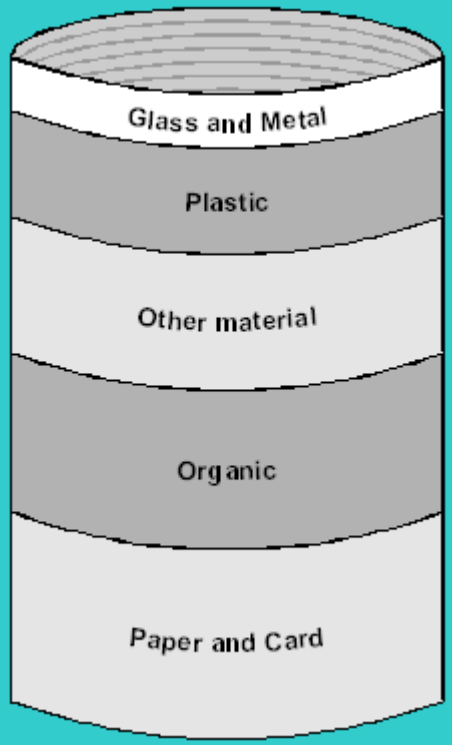


Answer:

Accept any other clear way of indicating 1 $\frac{3}{4}$ *on the number line as long as the intention is clear.*

Level 4 SATs Questions

This diagram shows the proportions of waste by weight a family throws away in one year



a) Estimate what **fraction** of the waste is **organic**. 1 mark

b) The family throws away about **35 kilograms of plastic** in a year.
Use the diagram to estimate the weight of **glass and metal** they throw away. 1 mark

c) What is the weight of **newspapers**? 2 marks

Answers:

(a) An answer in the range 1/5 to 3/10 OR 20% to 30% OR 0.2 to 0.3 INCLUSIVE.
Numbers in range 20 to 30 must have % sign, eg:
- *Do not **accept** '25'*

(b) An answer in the range 15 to 25 kg INCLUSIVE.
(c) Award **TWO** marks for correct answer of 91 kg.
If answer is incorrect, award **ONE** mark for appropriate calculation, eg:
- 70/100 × 130 = wrong answer;
- 10% is 13 so 70% 7 × 313 = wrong answer.
- H + 2H + H + 2H = 126
- 20 + 40 + 20 + 40 = 120

*A calculation **MUST** be performed for award of one mark.*
'70/100 × 130' alone is insufficient for award of one mark.

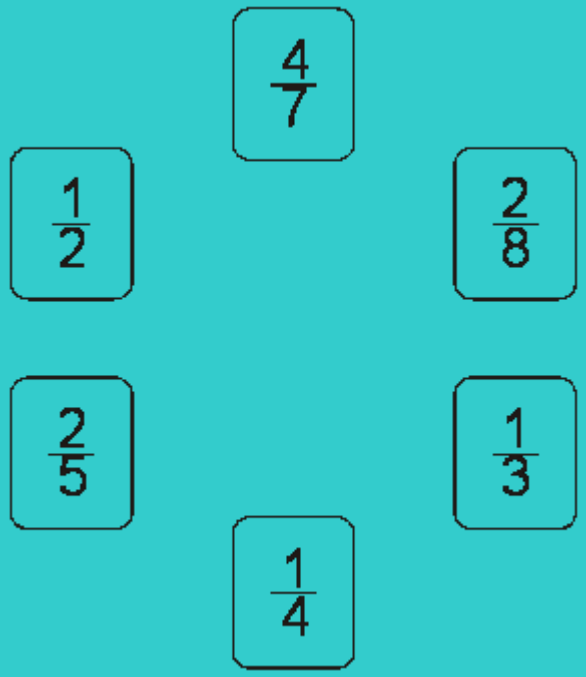
A larger bottle of juice will hold **30% more** than this bottle.

How much will the larger bottle hold?

Answer:

650ml

Draw **one** line to join **two fractions** which have the **same value**.



Answer:

$\frac{2}{8}$ joined to $\frac{1}{4}$

John had £5

He gave 25% of it to charity.

How much did he give?

Answer:

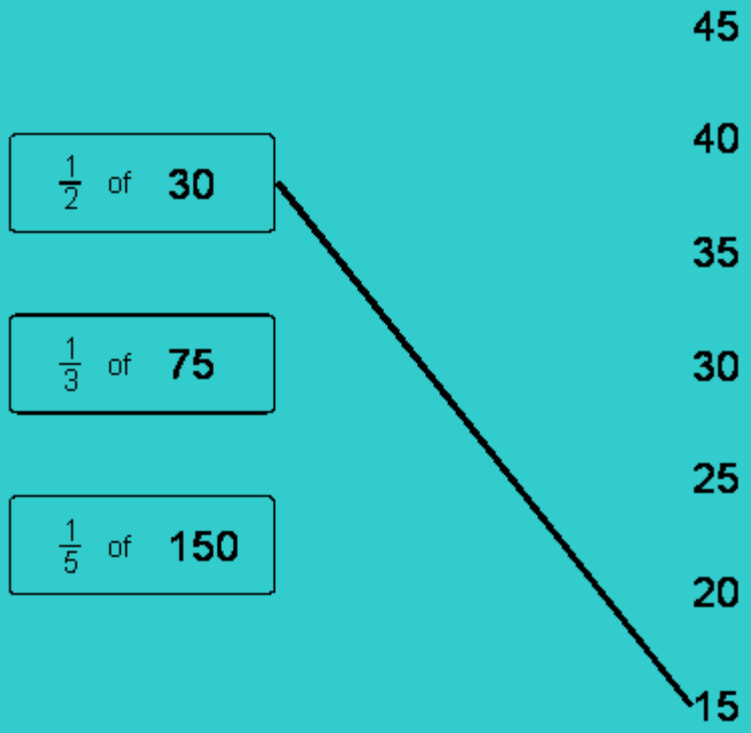
£1.25 *Accept also £1-25 or £1.25p*

Calculate **60%** of **765**

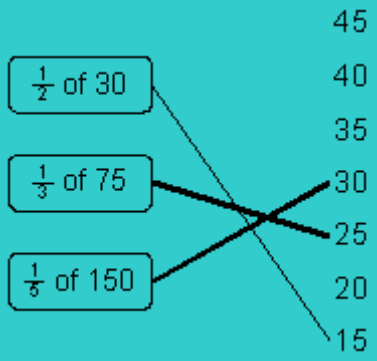
Answer:

459

Match each box to the correct number.
One has been done for you.



Answer:



Lines need not touch boxes or numbers exactly, provided the intention is clear.
***Do not** accept two or more lines emanating from the same left-hand box.*

Put a tick (✓) in **each row** to complete this table.
One has been done for you.

	greater than $\frac{1}{2}$	less than $\frac{1}{2}$
0.9	✓	
0.06		
$\frac{11}{20}$		
0.21		

Answer:

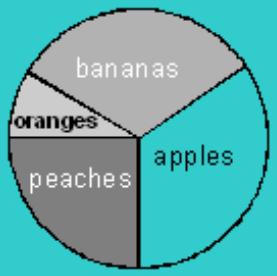
Award **TWO** marks for the table correctly completed as shown:

✓	
	✓
✓	
	✓

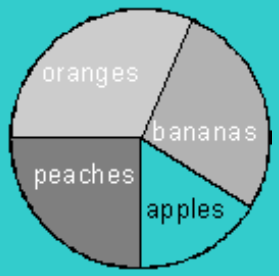
If the table is not correctly completed award **ONE** mark for any two out of three ticks correct.
Do not *accept any row that has both columns ticked.*
Accept unambiguous alternatives to ticks, eg 'yes'.

Level 5 SATs Questions

Some children work out how much money two shopkeepers get from selling fruit.
They use pie charts to show this.



Mrs Binns



Mr Adams

Mrs Binns gets **£350** selling **bananas.**
Estimate how much she gets selling **oranges.**

Mrs Binns gets a total of £1000 and Mr Adams gets a total of £800.
Estimate how much **more** Mrs Binns gets than Mr Adams for selling **peaches**.

Answers:

Award **ONE** mark for an answer in the range £85 to £125, **inclusive**

Award **ONE** mark for the correct answer of £50.
Accept any estimate in the range £45 to £55, **inclusive.**

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Here are some number cards

Use **two** of the cards to make a fraction which is **less than** $\frac{1}{2}$

How much **less than 1** is your fraction?

Answer:

$\frac{3}{7}$ OR $\frac{3}{9}$ OR $\frac{3}{11}$ OR $\frac{5}{11}$

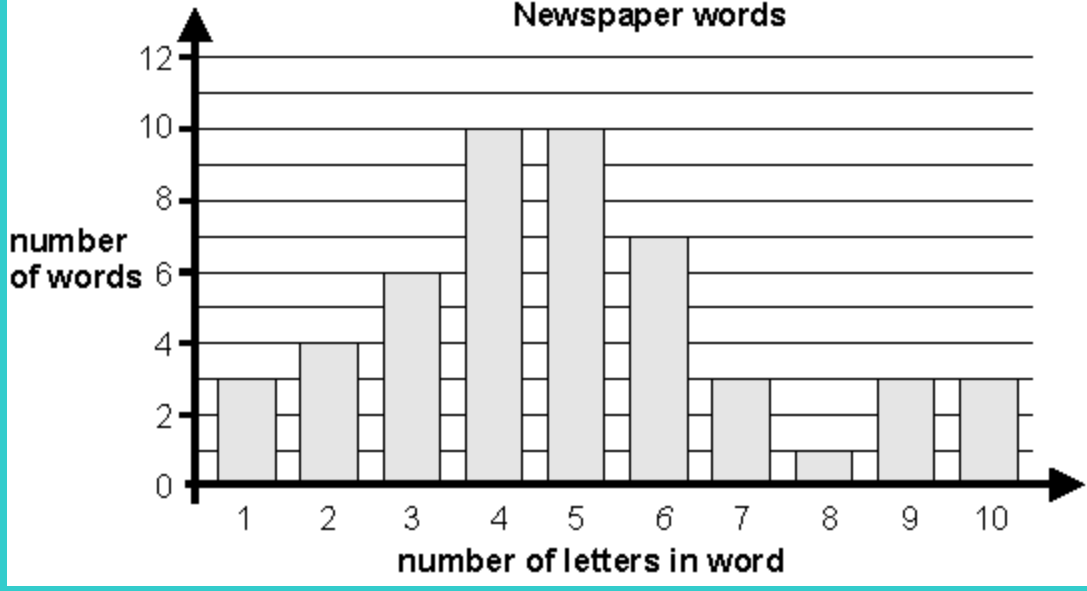
Accept only fractions formed by the cards given.

$\frac{4}{7}$ OR $\frac{6}{9}$ OR $\frac{8}{11}$ OR $\frac{6}{11}$

consistent with part (a).
If part (a) is incorrect, accept working of 1 – (answer to part (a)) provided the numbers used are on the cards.
Accept decimals.
If answer to part (a) is greater than 1, answer to part (b) must be negative.

Kelly chooses a **section** of a newspaper.
It has **50 words** in it.
She draws a bar chart of the number of letters in each word.

What **fraction** of the 50 words have **more than 6 letters**?



Kelly says,
23 of the 50 words have less than 5 letters. This shows that nearly half of all the words used in the newspaper have less than 5 letters in them.
Explain why she **could be wrong.**

Answers:

$^{1}/_{5}$ **OR** $^{10}/_{50}$
Accept other equivalent fractions, eg: $^{20}/_{100}$

Explanations which imply that the results from a small sample cannot safely be applied to a large one, eg:

'You could be wrong because every section is different'
- 'The article is only a small proportion of the whole newspaper'
- 'The rest could be different'
- 'You can't judge a whole newspaper by one article'

Do not *accept vague or arbitrary explanations such as:*
'She might not have counted right';
'The words in the newspaper might be big';
'There are more bigger words than small'.