



TestBase Fractions

L4

Name: _____

Class: _____

Date: _____

Time: **54 minutes**

Marks: **53 marks**

Comments:

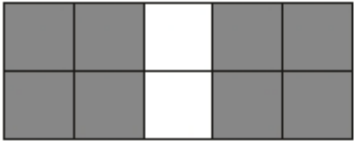
1

Here are some shapes made of squares.

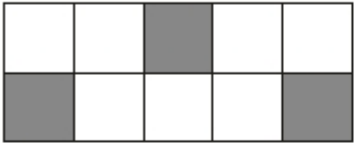
A fraction of each shape is shaded.

Match each shape to its equivalent fraction.

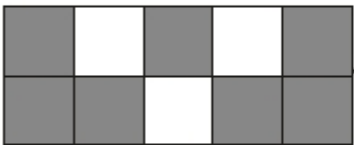
One has been done for you.



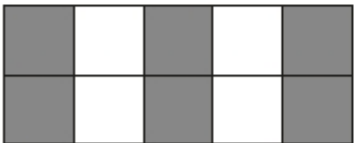
$\frac{7}{10}$



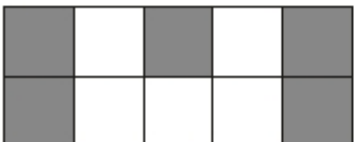
$\frac{3}{5}$



$\frac{1}{2}$



$\frac{4}{5}$



$\frac{3}{10}$

2 marks

2

How many quarters are there in $2\frac{3}{4}$?

quarters

1 mark

3 Write the missing numbers.

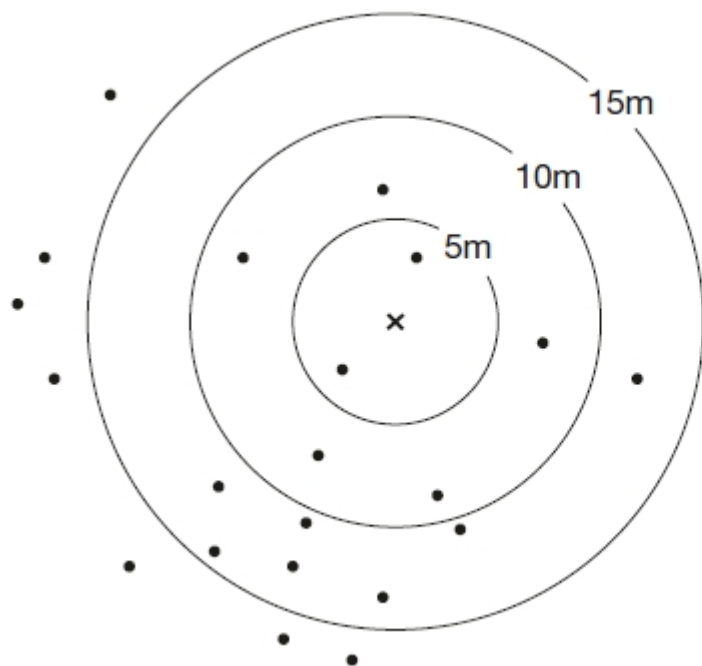
One is done for you.

Improper fraction	Mixed number
$\frac{7}{4}$	$1\frac{3}{4}$
$\frac{\square}{2}$	$5\frac{1}{2}$
$\frac{17}{5}$	$3\frac{\square}{5}$

2 marks

4 Class 6 did a survey of mushrooms growing in a field.

The diagram shows the distances of mushrooms from the centre of the field.



x is the centre of the field
• is a mushroom

How many mushrooms were more than 10 metres from the centre?



1 mark

What **fraction** of the mushrooms were less than 10 metres from the centre?



1 mark

5

Join each fraction to the correct decimal card.

The first one has been done for you.



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

0.03

$$\frac{3}{5}$$

0.06

$$\frac{3}{100}$$

0.3

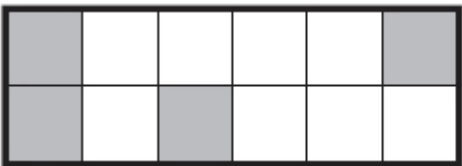
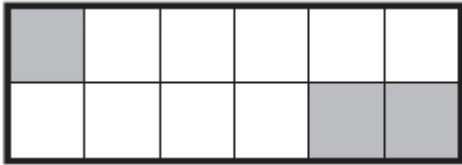
$$\frac{3}{50}$$

0.6

1 mark

6

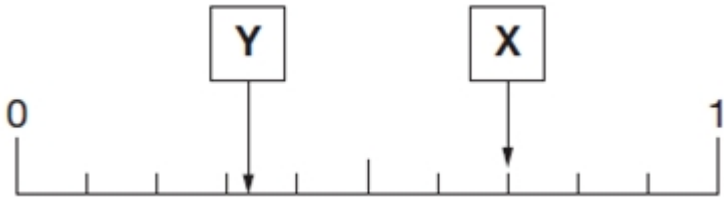
Tick (✓) each shape that is exactly $\frac{1}{4}$ shaded.



1 mark

7

Here is a number line.



What is the value of X?

X =

1 mark

Estimate the value of Y.

Y =

1 mark

8



Holly says,

'One-third of this shape is shaded'.

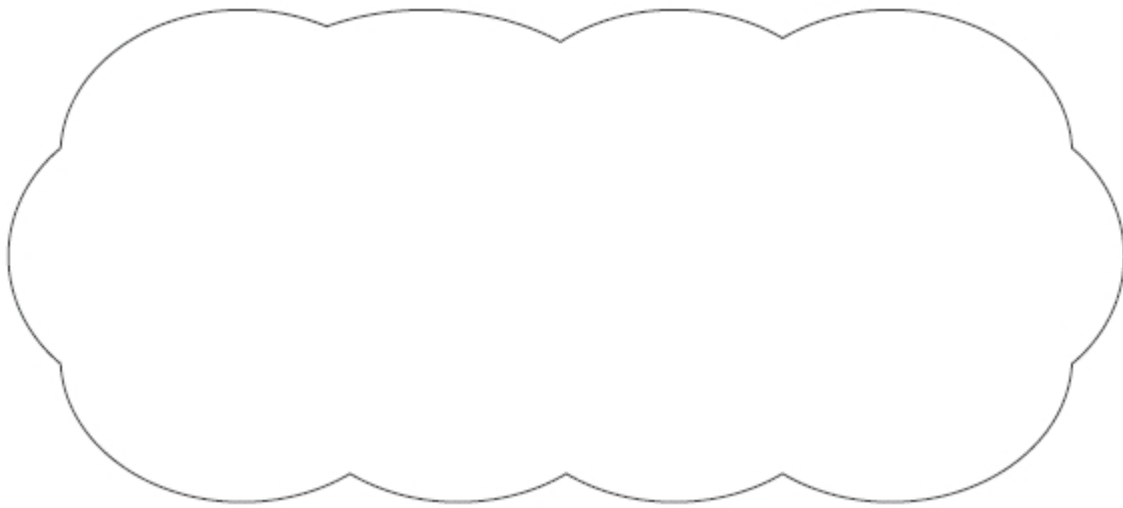
Is Holly correct?

Circle **Yes** or **No**.

Yes / No

Explain how you know.

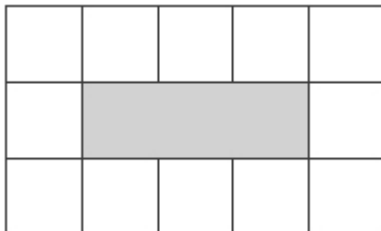
Handwritten mark



1 mark

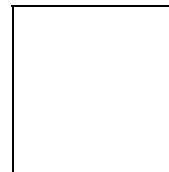
9

This diagram shows a shaded rectangle surrounded by squares.



What fraction of the diagram is shaded?

Handwritten mark




1 mark

10

Here are five number cards.



Use **three** of the number cards to make this calculation correct.

 $(\square + \square) \times \square = 10$

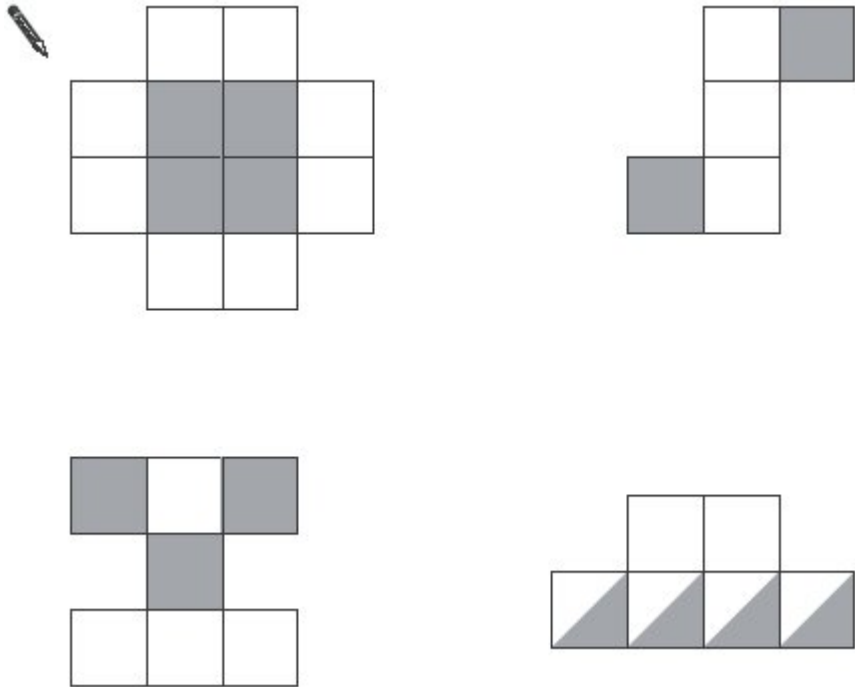
1 mark

11

These diagrams are all made of squares.

Look at each diagram.

Put a tick (✓) if exactly $\frac{1}{3}$ of it is shaded. Put a cross (✗) if it is not.



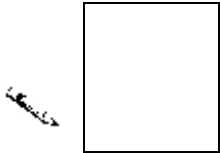
2 marks

12

Stefan has a bag that contains 3 blue marbles and 5 red marbles only.



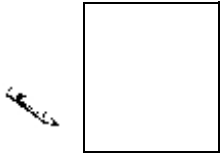
What fraction of the marbles in the bag are blue?



1 mark

Stefan adds one blue marble and one red marble to the bag.

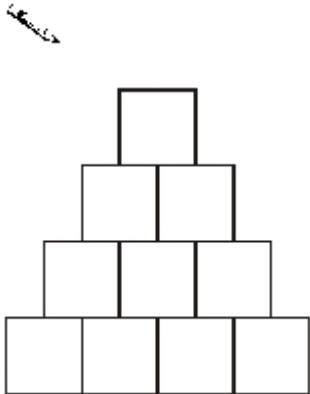
What fraction of the marbles in the bag are blue now?



1 mark

13

Shade $\frac{1}{5}$ of this shape.



1 mark

14 Match each decimal number to its equivalent fraction.

One has been done for you.



0.25

$\frac{3}{4}$

0.4

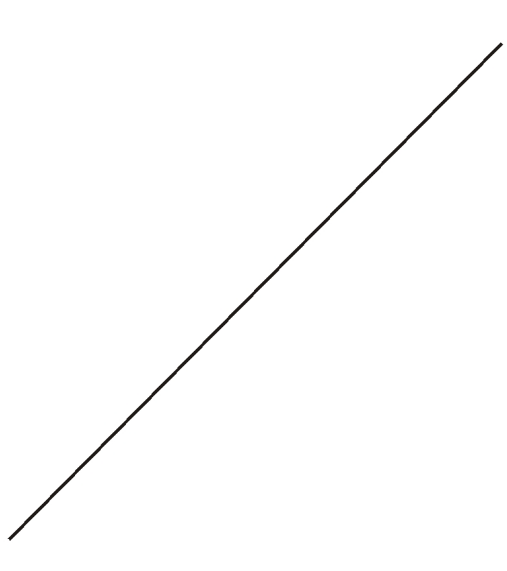
$\frac{2}{10}$

0.75

$\frac{1}{4}$

0.2

$\frac{2}{5}$



1 mark

15 Calculate $\frac{3}{4}$ of £15



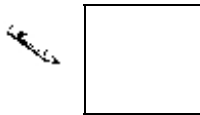
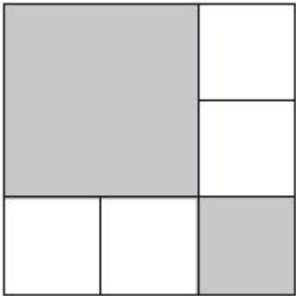
£

1 mark

16

The diagram is made of squares.

What fraction of the diagram is shaded?

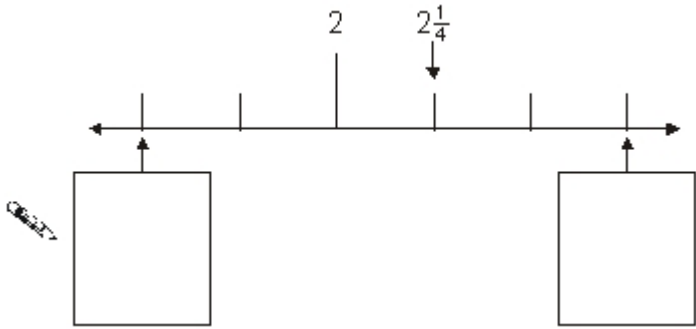


1 mark

17

Here is part of a number line.

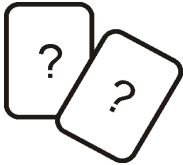
Write in the two missing numbers.



2 marks

18

Karen makes a fraction using two number cards.




She says,

**'My fraction is equivalent to $\frac{1}{2}$
One of the number cards is 6'**

What could Karen's fraction be?

Give both possible answers.



<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div> <hr style="width: 40px; margin: 0 auto;"/>	or	<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div> <hr style="width: 40px; margin: 0 auto;"/>
<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>		<div style="border: 1px solid black; width: 40px; height: 40px; margin: 0 auto;"></div>

2 marks

19

Match each box to the number which has the same value.

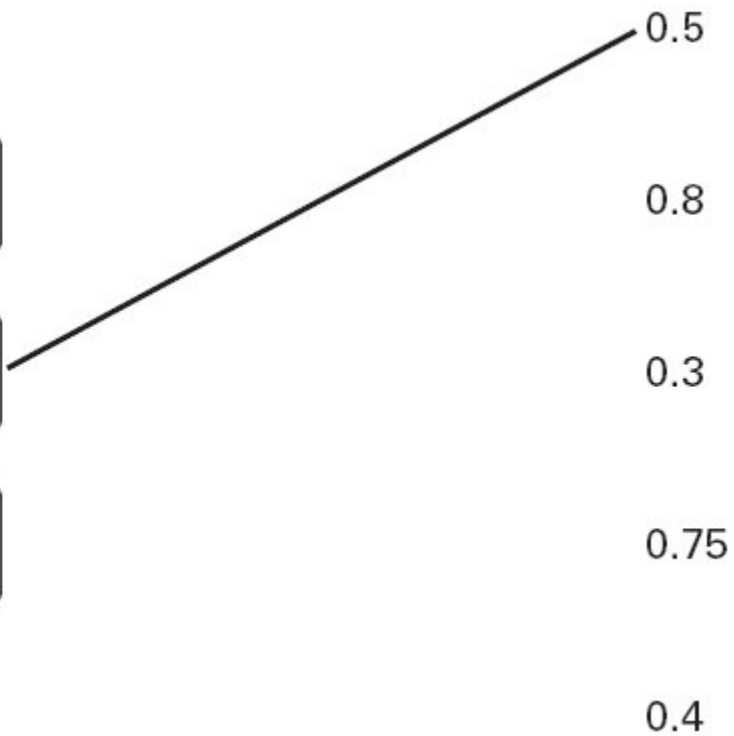
One has been done for you.



$$\frac{3}{4}$$

$$\frac{1}{2}$$

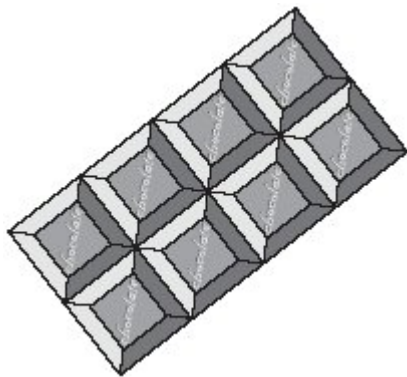
$$\frac{4}{5}$$



1 mark

20

Here is a chocolate bar.



William eats 3 pieces and Amber eats 2 pieces.

What **fraction** of the chocolate bar **remains**?



1 mark

21 Put a tick (✓) in **each row** to complete this table.

One has been done for you.

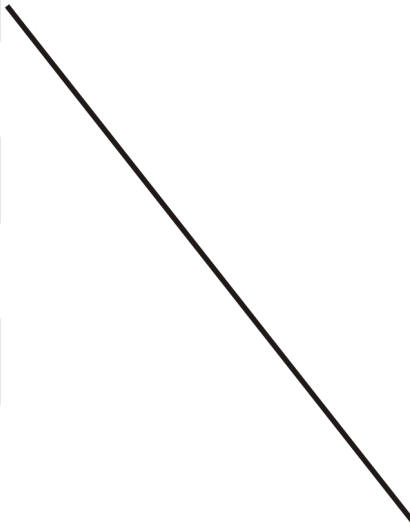
	greater than $\frac{1}{2}$	less than $\frac{1}{2}$
0.9	✓	
0.06		
$\frac{11}{20}$		
0.21		

2 marks

22 Match each box to the correct number.

One has been done for you.

$\frac{1}{2}$ of 30	45
$\frac{1}{3}$ of 75	40
$\frac{1}{5}$ of 150	35
	30
	25
	20
	15



1 mark

23

Calculate $\frac{3}{4}$ of **840**



1 mark

24

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



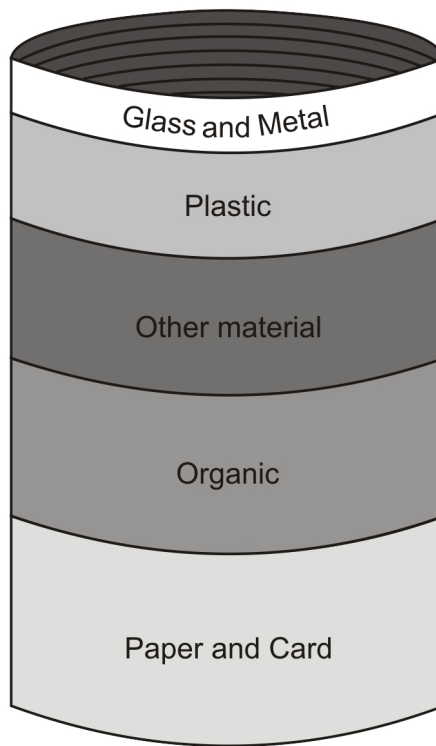
Diagram showing six rounded rectangular boxes containing fractions:

- Top row: $\frac{1}{2}$, $\frac{4}{7}$, $\frac{2}{8}$
- Bottom row: $\frac{2}{5}$, $\frac{1}{4}$, $\frac{1}{3}$

1 mark

25

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



Estimate what **fraction** of the waste is **organic**.

Handwritten mark →

1 mark

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.

Handwritten mark → **kg**

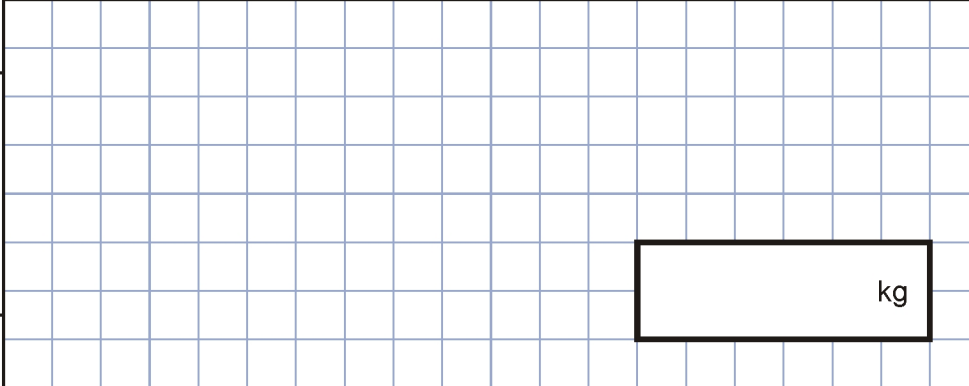
1 mark

The family throws away **130 kg** of paper and card.

70% of this is **newspapers**.

What is the weight of **newspapers**?

Show your method



2 marks

26

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

1 mark

27

$$\frac{1}{9} + \frac{4}{9} =$$

1 mark

28

$$\frac{1}{7} = \frac{?}{21}$$

1 mark

29

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

1 mark

30

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

1 mark

31

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

1 mark

32

$$\frac{1}{4} = \frac{?}{24}$$

1 mark

33

$$\frac{1}{7} \text{ of } 21 =$$

1 mark

34

$$\frac{1}{3} = \frac{?}{15}$$

1 mark

35

$$\frac{1}{8} \text{ of } 32 =$$

1 mark

36

$$\frac{1}{8} \text{ of } 996 =$$

1 mark

37

$$2\frac{2}{9} + 3\frac{5}{9} =$$

1 mark

38

$$\frac{1}{9} \text{ of } 27 =$$

1 mark

39

$$\frac{2}{5} \text{ of } 30$$

1 mark

40

$$\frac{1}{6} = \frac{?}{30}$$

1 mark

41

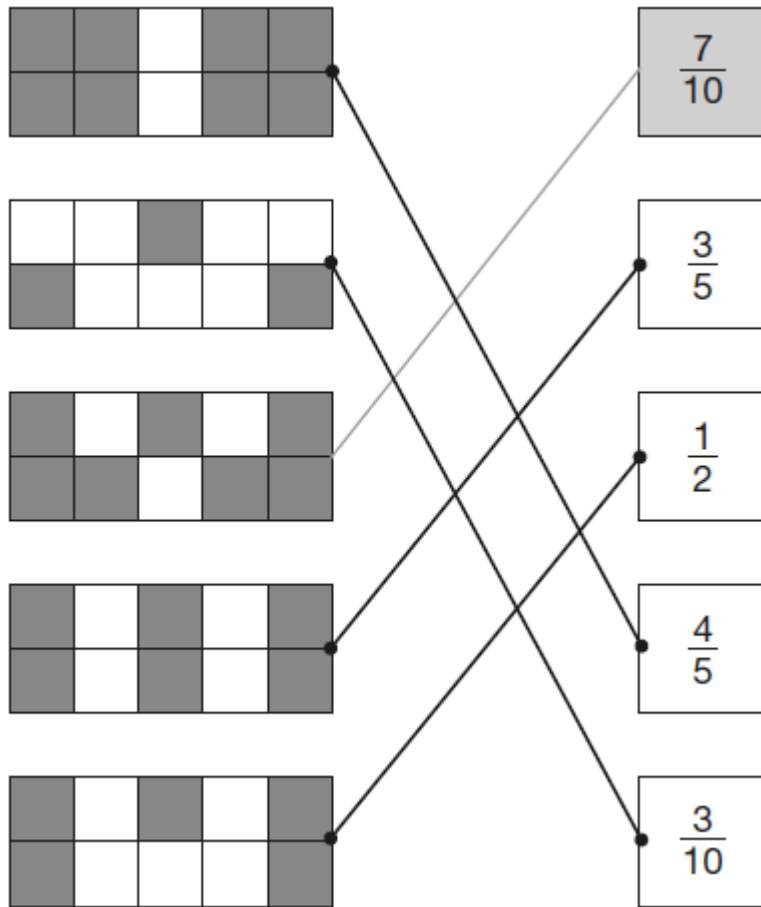
$$\frac{2}{3} \text{ of } 24 =$$

1 mark

Mark schemes

1

Award **TWO** marks for four shapes matched correctly as shown:



If the answer is incorrect, award **ONE** mark for three shapes matched correctly.

Lines need not touch shapes or fraction boxes, provided the intention is clear.

Do not credit any shape that has been matched to more than one fraction.

Up to 2

[2]

2

11 quarters

[1]

3

$$\frac{11}{2}$$

1

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

1

[2]

4 (a) 14

1

(b) $\frac{1}{3}$

Accept equivalent fractions eg $\frac{7}{21}$.

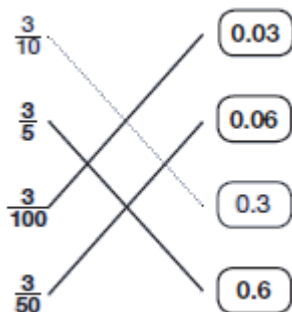
Ignore subsequent work if $\frac{7}{21}$ is simplified incorrectly.

Accept follow through in part (b) of $\frac{7}{a+7}$.

1

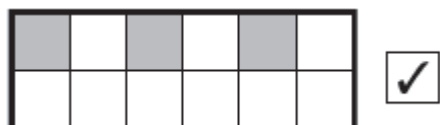
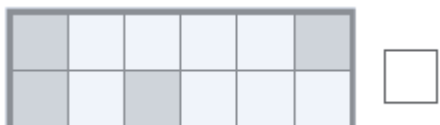
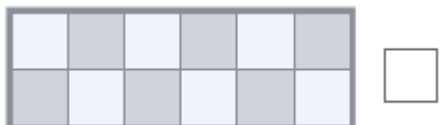
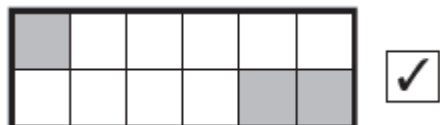
[2]

5 Fractions connected correctly to decimals as shown:



[1]

6 Diagram ticked correctly as shown:



Accept alternative unambiguous indications.

[1]

7

(a) 0.7

Accept equivalent fractions.

1

(b) Answer in the range 0.3 to 0.35 exclusive

Accept fractions, eg $\frac{1}{3}$

Do not accept 0.3 OR 0.35

1

If the answer to (a) is in the range 0.3 to 0.35 exclusive AND the answer to (b) is 0.7, then award ONE mark for (b).

[2]

8

An explanation which recognises that the shaded area is equivalent to one-third, eg:

- ‘ $\frac{2}{6}$ is shaded and that is equivalent to $\frac{1}{3}$ ’
- ‘2 out of 6 is the same as 1 out of 3’
- ‘2 out of 6’
- ‘ $\frac{2}{6}$ is shaded and $\frac{4}{6}$ is not shaded, which is the same as $\frac{1}{3}$ shaded and $\frac{2}{3}$ not shaded’
- ‘There are 3 squares, and 2 halves are shaded, and 2 halves make one whole’
- ‘The two shaded triangles are the same as one square and that is one out of three squares’
- ‘1 square out of 3’
- ‘If you add the shaded parts together it makes one square’



No mark is awarded for circling ‘Yes’ alone.

Do not accept vague or incomplete explanations, eg:

- ‘It’s equivalent to $\frac{1}{3}$ ’
- ‘ $\frac{1}{3}$ is shaded and $\frac{2}{3}$ is not shaded’
- ‘The two parts shaded add up to $\frac{1}{3}$ ’
- ‘Half of 2 squares are shaded’.

If ‘No’ is circled but a correct, unambiguous explanation is given, then award the mark.

U1

[1]

9

$\frac{1}{5}$

Accept equivalent fractions, eg $\frac{3}{15}$
Accept 0.2 **OR** 20%

[1]

10

$$\left(1\frac{1}{2} + 3\frac{1}{2} \right) \times 2$$

OR

$$\left(\frac{1}{2} + 3\frac{1}{2} \right) \times 2\frac{1}{2}$$

Numbers in brackets may be given in either order.
Accept equivalent fractions or decimals.

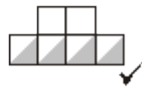
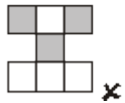
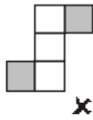
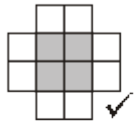
Do not accept use of the same card twice, eg

$$\left(2\frac{1}{2} + 2\frac{1}{2} \right) \times 2$$

[1]

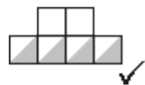
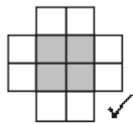
11

Award **TWO** marks for diagrams ticked or crossed as shown:



Accept alternative unambiguous indications, eg
Y or **N**.

For **TWO** marks, accept:



If the answer is incorrect, award **ONE** mark for three diagrams ticked or crossed correctly.

Up to 2

[2]

12 (a) $\frac{3}{8}$

Accept equivalent fractions or decimals.

1

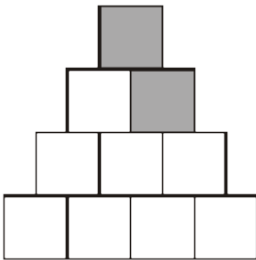
(b) $\frac{4}{10}$ **OR** $\frac{2}{5}$

Accept equivalent fractions or decimals.

1

[2]

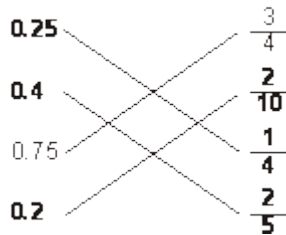
13 Any two squares shaded, eg



*Accept part shapes shaded provided the intention is clear.
Accept inaccuracies in shading provided the intention is clear.*

[1]

14 All numbers matched correctly as shown:



Do not award the mark if additional incorrect lines are drawn.
Lines need not touch the numbers provided the intention is clear.

[1]

15 £11.25

[1]

16 $\frac{5}{9}$

Accept equivalent fractions.

[1]

17

(a) $1\frac{1}{2}$ in the first box

Accept equivalent fractions or decimals, eg 1.5

1

(b) $2\frac{3}{4}$ in the second box

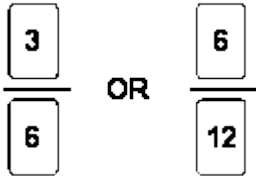
Accept equivalent fractions or decimals, eg 2.75

1

[2]

18

Award **TWO** marks for both fractions correct as shown:



If the answer is incorrect, award **ONE** mark for one fraction correct.

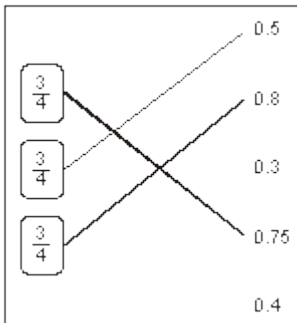
Accept fractions written in either order.

Up to 2

[2]

19

Diagram completed correctly as shown:



Both lines must be drawn correctly for the award of the mark.

Lines need not touch boxes or numbers exactly, provided the intention is clear.

[1]

20

$$\frac{3}{8}$$

Accept equivalent fractions or decimals, eg 0.375

[1]

21

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.

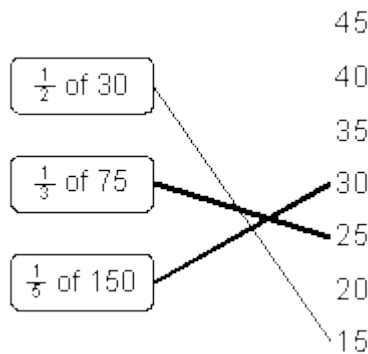
Accept unambiguous alternatives to ticks, eg 'yes'.

Up to 2

[2]

22

Diagram completed correctly as shown:



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.

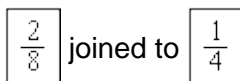
[1]

23

630

[1]

24



The line need not touch the fractions, provided the intention is clear.

Do not award the mark if more than one pair of fractions are joined.

[1]

25

(a) An answer in the range $\frac{1}{5}$ to $\frac{3}{10}$ 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.

1

(c) Award **TWO** marks for correct answer of 91 kg.

If answer is incorrect, award **ONE** mark for appropriate calculation, eg:

- $70/100 \times 130 =$ wrong answer;
- 10% is 13 so $70\% 7 \times 313 =$ 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.*

Up to 2

[4]

26 $\frac{5}{7}$

[1]

27 $\frac{5}{9}$

*Accept equivalent fractions or the **exact** decimal equivalent, e.g. 0.5
(accept any unambiguous indication of the recurring digit).*

***Do not** accept rounded or truncated decimals.*

Commentary: This question is also expressed in common fractions and pupils should give their answer as a common fraction. This fraction answer does have a recurring decimal equivalent which would also be creditworthy. However, a decimal answer truncated to 0.5 or rounded to 0.56 for example would not be awarded the mark.

[1]

28 3

[1]

29 16

[1]

30 $2\frac{4}{6}$ or $2\frac{2}{3}$

[1]

31 $5\frac{3}{5}$

[1]

32 6

[1]

- 33 3 [1]
- 34 5 [1]
- 35 4 [1]
- 36 124.5 or $124\frac{1}{2}$ [1]
- 37 $5\frac{7}{9}$ [1]
- 38 3 [1]
- 39 12 [1]
- 40 5 [1]
- 41 16 [1]