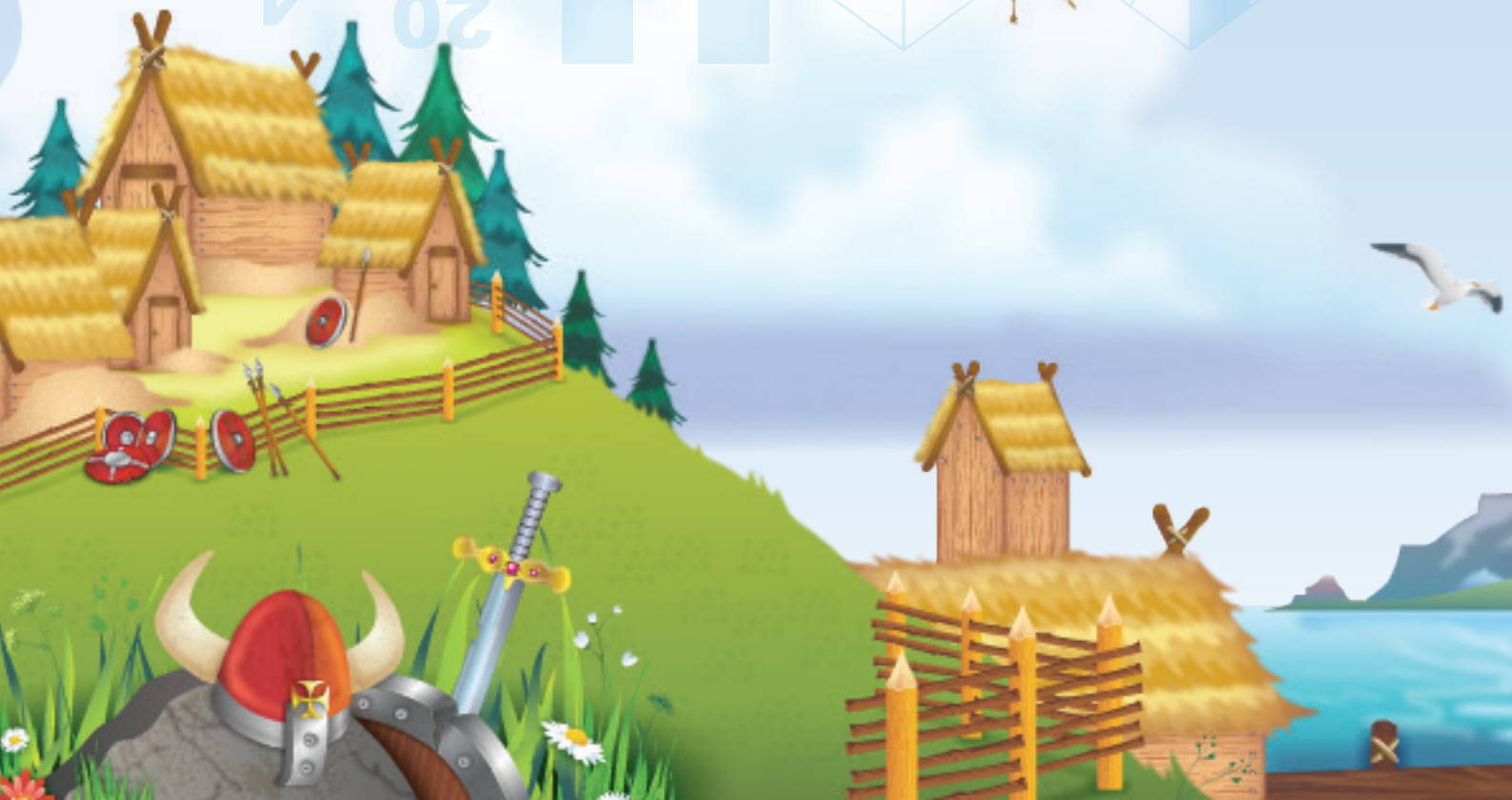
Mathletics

Series E Teacher

Fractions



Series E – Fractions

Contents

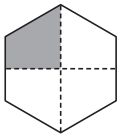
Series Author:

Nicola Herringer

Series E – Fractions

Pages 1–2

1a



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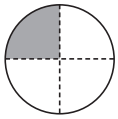

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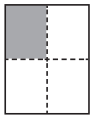

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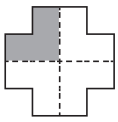
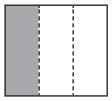


2a



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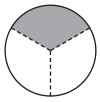

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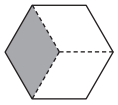

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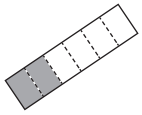


3a $\frac{3}{4}$

b $\frac{2}{6}$

c $\frac{2}{5}$

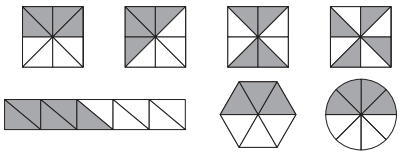
4

5

Shape	a	b	c	d	e	f
Fraction that is shaded	$\frac{1}{3}$	$\frac{7}{10}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{6}$	$\frac{1}{2}$
Fraction that is unshaded	$\frac{2}{3}$	$\frac{3}{10}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{5}{6}$	$\frac{1}{2}$

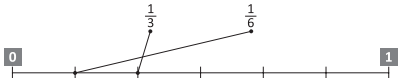
6 Answers will vary.

Sample answers:



Pages 3–5

1a



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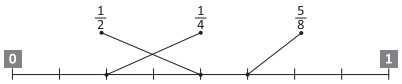

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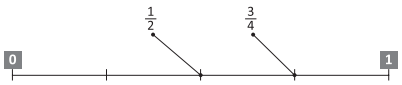

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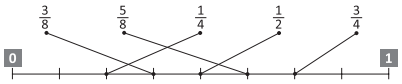

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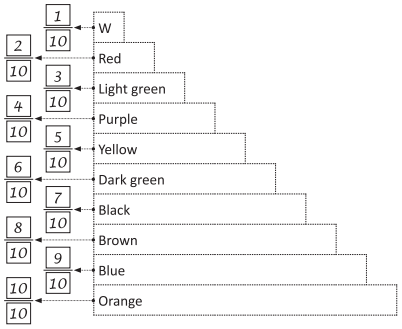


3a Brown

b Brown

c Light green

d Purple = $\frac{4}{10}$; Dark green = $\frac{6}{10}$

e Red = $\frac{2}{9}$; Light green = $\frac{3}{9}$;

Purple = $\frac{4}{9}$

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

b $\frac{1}{2}$

c $\frac{1}{4}$

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

b $\frac{1}{8}$

c $\frac{1}{4}$

6a $\frac{5}{6}$

b $\frac{3}{6}$ or $\frac{1}{2}$

c $\frac{1}{6}$

7a

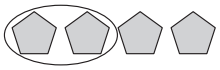
Purple

Red

White

Pages 6–8

1a



4 ÷ 2 = 2

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

b

8 ÷ 4 = 2

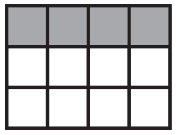
$\frac{1}{4}$ of 8 = 2

c

12 ÷ 4 = 3

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

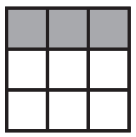
2b



12 ÷ 3 = 4

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

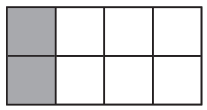
c



9 ÷ 3 = 3

$\frac{1}{3}$ of 9 = 3

3a



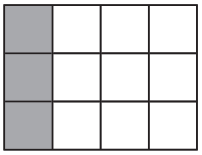
8 ÷ 4 = 2

$\frac{1}{4}$ of 8 = 2

Series E – Fractions

Pages 6–8

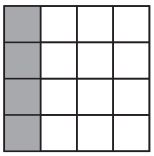
3b



12 ÷ 4 = 3

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

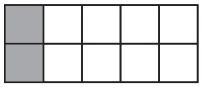
c



16 ÷ 4 = 4

$\frac{1}{4}$ of 16 = 4

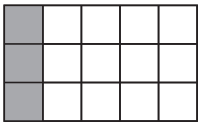
4a



10 ÷ 5 = 2

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

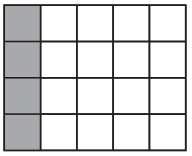
b



15 ÷ 5 = 3

$\frac{1}{5}$ of 15 = 3

c



20 ÷ 5 = 4

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

5a 4

b 3

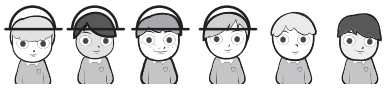
c 3

d 3

e 2

f 5

6



7a 2; 4; 2

b 4; 8; 4

c 11; 5; 4

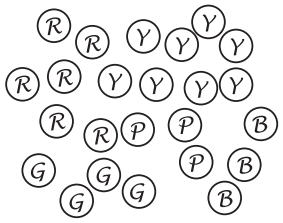
8a 6

b 3

c 8

d 4

e 3



Page 9

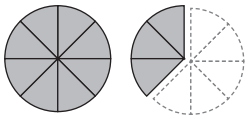
1 $\frac{1}{2}$ of £10 = £5 or £10 ÷ 2 = £5;
£5

2 8 × 4 = 32;
32 jelly beans

3 Marley ate $\frac{1}{4}$ of 8 = 2 pieces
Matt ate $\frac{1}{2}$ of 8 = 4 pieces
8 – 6 = 2;
2 pieces left

4 $\frac{1}{8}$ of 24 = 3 pink cupcakes
$\frac{1}{8}$ of 24 = 6 blue cupcakes
24 – 9 = 15;
15 plain cupcakes

5



So $1\frac{3}{8}$ is left.

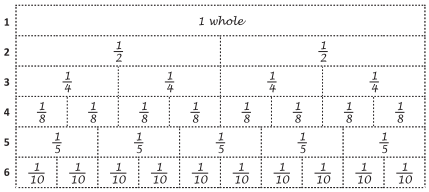
$1\frac{3}{8}$ pizzas

Pages 10–11

What to do

Observe students.

Page 12



Strips 5 and 6: $\frac{1}{5}$; $\frac{1}{10}$

Pages 13–14

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

b $\frac{4}{8}$

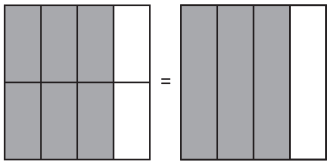
c $\frac{5}{5}$

d $\frac{5}{10}$

Observe students.

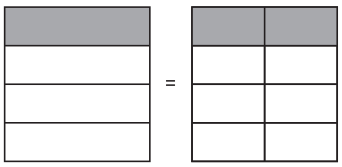
2 Answers will vary.
Sample answers:

a



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

b

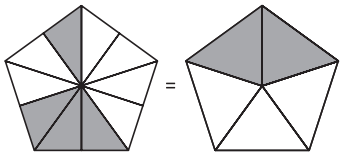


$\frac{1}{4} = \frac{2}{8}$

Series E – Fractions

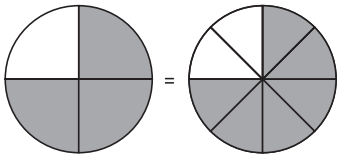
Pages 13–14

2c



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

d



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

3a T

b F

c F

d T

e T

f F

Pages 15–16

What to do

Observe students.

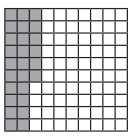
Page 17

1a 40, 100; $\frac{40}{100}$

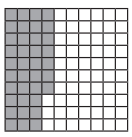
b 25, 100; $\frac{25}{100}$

c 19, 100; $\frac{19}{100}$

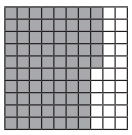
2a



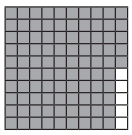
b



c



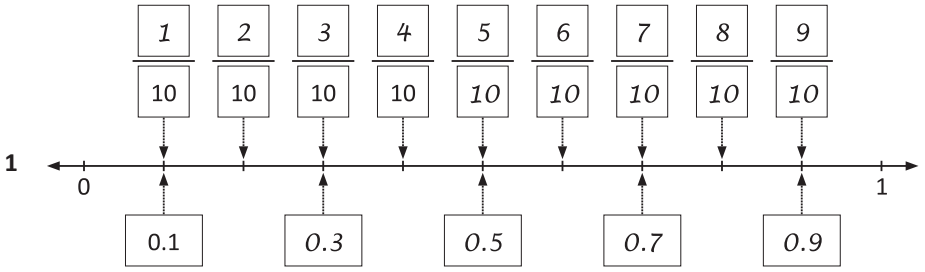
d



3 $\frac{26}{100}$ $\frac{37}{100}$ $\frac{75}{100}$ $\frac{95}{100}$

Page 18

1



2a $\frac{10}{10}$; 1.0

b $\frac{6}{10}$; 0.6

c $\frac{8}{10}$; 0.8

Page 19

1a

b

c

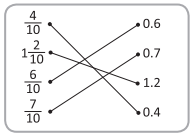
2a 0.2, $\frac{4}{10}$, 0.8, $\frac{9}{10}$

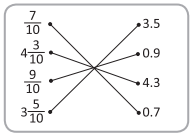
b 0.1, $\frac{5}{10}$, $\frac{9}{10}$, 1.0

3

	Ones		Tenths
a 0.6	0	•	6
b 2.7	2	•	7
c 5.1	5	•	1

4





Page 20

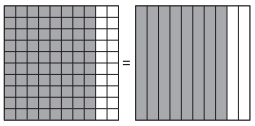
1a $\frac{24}{100}$; 0.24

b $\frac{32}{100}$; 0.32

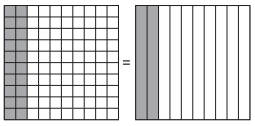
2a–f Teacher check

Pages 21–23

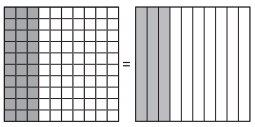
1a



b



c



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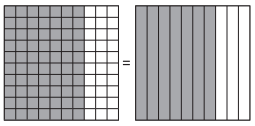
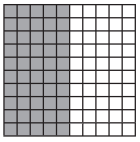
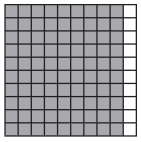


2a



b



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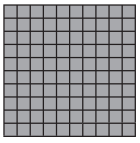

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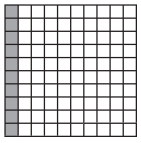


3a 2; 20; 0.2

b 6; 60; 0.6

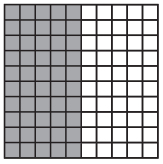
c 17; 0.17

d 27; 0.27

4

Hundreds	Tens	Ones		Tenths	Hundredths
		2	•	6	
		3	•	7	6
1	1	2	•	6	
	4	5	•	6	7

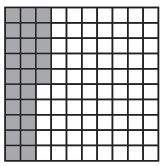
5a

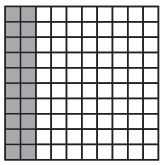


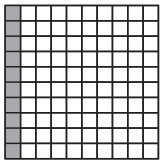
$= \frac{50}{100} = 0.5$

Series E – Fractions

Pages 21–23

5b  $= \frac{25}{100} = 0.25$

c  $= \frac{20}{100} = 0.2$

d  $= \frac{10}{100} = 0.1$

6a $\frac{50}{100} = 0.5$

b $\frac{80}{100} = 0.8$

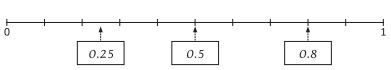
c $\frac{40}{100} = 0.4$

d $\frac{75}{100} = 0.75$

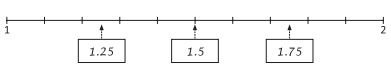
e $\frac{50}{100} = 0.5$

f $\frac{50}{100} = 0.5$

7a



b



Pages 24–25

1a

Tens	Ones		Tenths	Hundredths	
	8	•			
	0	•	8		÷ 10
	0		0	8	÷ 100

1b

Tens	Ones		Tenths	Hundredths	
	4	•			
	0	•	4		÷ 10
	0		0	4	÷ 100

c

Tens	Ones		Tenths	Hundredths	
2	7	•			
	2	•	7		÷ 10
	0		2	7	÷ 100

d

Tens	Ones		Tenths	Hundredths	
9	3	•			
	9	•	3		÷ 10
	0		9	3	÷ 100

2a 0.6

b 0.9

c 1.7

d 4.6

e 7.5

f 32.8

3a 0.17

b 0.06

c 0.63

d 0.02

e 0.48

f 3.19

Page 26

1a 3.7; 5.5; 5.7; 7.3; 7.5

b 23.2; 23.3; 30.1; 32.2; 33.2

2a 4.53; 4.34; 3.54; 3.43; 3.34

b 76.07; 70.67; 70.06; 67.76; 67.67

Page 27

1a 3

b 10

c 18

d 35

e 200

f 688

2a (46.6)

b (105.4)

c (377.5)

3a–f Answers will vary.

Page 28

1a $\frac{1}{4}$; 0.25

b $\frac{3}{4}$; 0.75

c $\frac{1}{2}$; 0.5

d $\frac{1}{2}$; 0.5

e $\frac{3}{4}$; 0.75

f $\frac{1}{4}$; 0.25

Page 29

1a 6

b 1.5 litres

c 0.09 kg

d £3.96

e £0.15

Pages 30–31

What to do

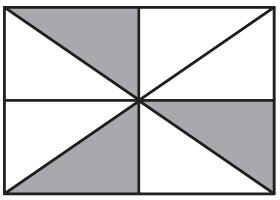
Observe students.

Working with fractions

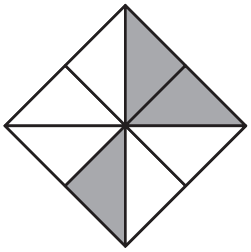
Name _____

1 **Write the fraction shown on each shape:**

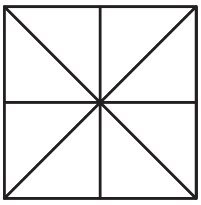
a  $\frac{\square}{\square}$

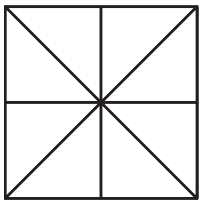
b  $\frac{\square}{\square}$

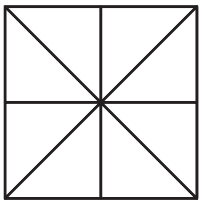
c  $\frac{\square}{\square}$

d  $\frac{\square}{\square}$

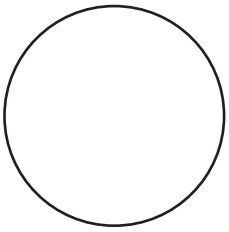
2 **Show $\frac{1}{2}$ in a different way on each shape:**

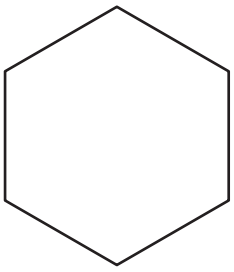






3 **Show $\frac{1}{4}$ on each shape:**





Skills	Not yet	Kind of	Got it
• Interprets the numerator and denominator of a fraction			
• Represents halves and quarters of an object in different ways			
• Interprets the numerator and denominator of a fraction			

Working with fractions

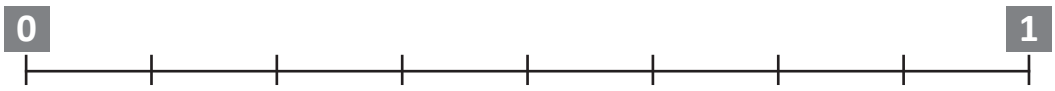
Name _____

4 **Connect the fractions to their places on the number line:**

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

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

c $\frac{3}{8}$ $\frac{5}{8}$ $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{4}$



5 **Circle the bigger fraction in each pair:**

a $\frac{1}{3}$ and $\frac{1}{4}$ **b** $\frac{1}{5}$ and $\frac{1}{2}$ **c** $\frac{3}{8}$ and $\frac{1}{4}$

d $\frac{1}{4}$ and $\frac{1}{8}$ **e** $\frac{1}{4}$ and $\frac{2}{3}$ **f** $\frac{1}{2}$ and $\frac{4}{10}$

6 **Write T for true or F for false next to each pair of fractions:**

a $\frac{1}{3} > \frac{1}{4}$ ☐ **b** $\frac{1}{2} = \frac{4}{8}$ ☐ **c** $\frac{2}{3} < \frac{1}{6}$ ☐ **d** $\frac{2}{4} = \frac{3}{6}$ ☐

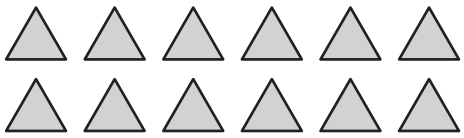
Skills	Not yet	Kind of	Got it
• Orders common fractions with different denominators			
• Finds equivalence between halves, quarters and eighths			

Working with fractions

Name _____

7 **Circle the fraction given for each group and complete the statements:**

a $\frac{1}{3}$ of 12 triangles



b $\frac{1}{4}$ of 16 stars

8 **Find the fraction of these numbers:**

a $\frac{1}{4}$ of 12 = ☐

b $\frac{1}{3}$ of 9 = ☐

c $\frac{1}{8}$ of 16 = ☐

d $\frac{1}{5}$ of 15 = ☐

e $\frac{1}{4}$ of 20 = ☐

f $\frac{1}{10}$ of 20 = ☐

9 **Solve these fraction word problems.**

a Josh scattered a packet of 36 jelly beans onto his desk. $\frac{1}{6}$ of the jelly beans were black. How many jelly beans were NOT black? ☐

b Nina and Drew made a pizza and cut it into 8 pieces. Nina ate $\frac{1}{2}$ and Drew ate $\frac{3}{8}$. How many pieces were left? ☐

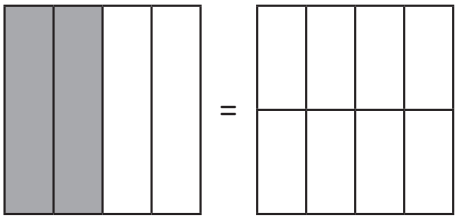
Skills	Not yet	Kind of	Got it
• Finds a fraction of a collection of objects			
• Finds a fraction of a whole number			

Types of fractions

Name _____

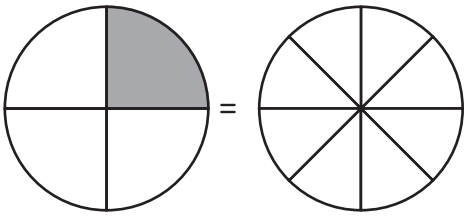
1 Shade and label these models to show equivalent fractions:

a



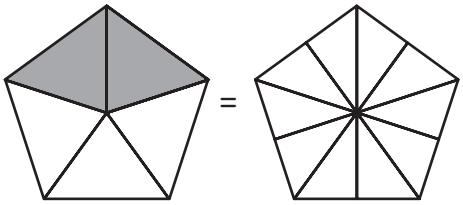
$\frac{\square}{\square} = \frac{\square}{\square}$

b



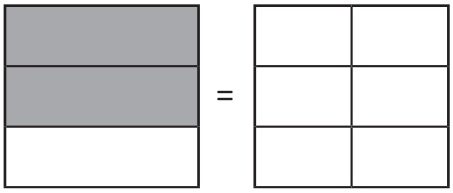
$\frac{\square}{\square} = \frac{\square}{\square}$

c



$\frac{\square}{\square} = \frac{\square}{\square}$

d



$\frac{\square}{\square} = \frac{\square}{\square}$

2 Make the fractions equivalent:

a $\frac{1}{4} = \frac{\square}{8}$ **b** $\frac{1}{5} = \frac{\square}{10}$ **c** $\frac{1}{6} = \frac{\square}{12}$ **d** $\frac{1}{3} = \frac{\square}{6}$

3 Insert the fraction or decimal equivalent:

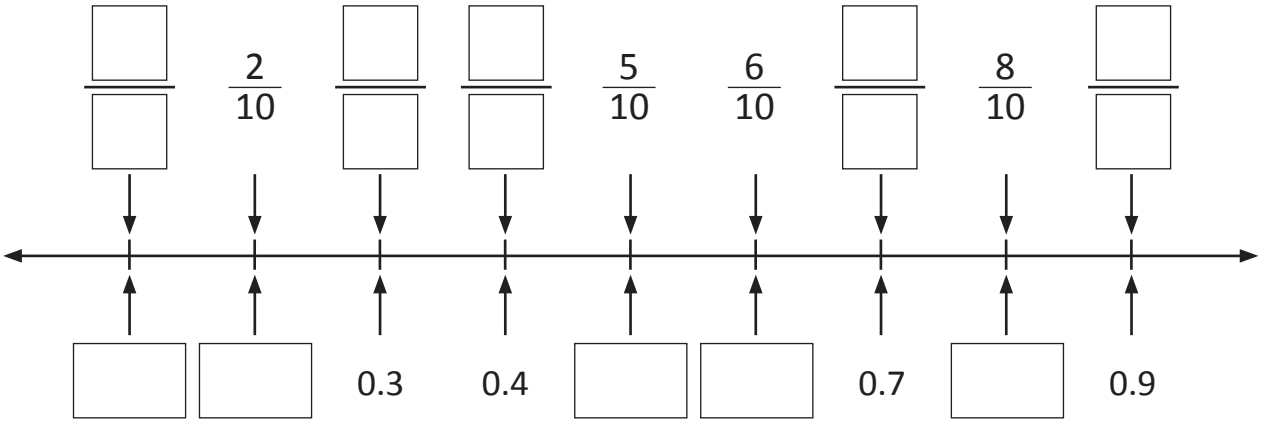
a $\frac{1}{2} = \square$ **b** $\square = 0.25$ **c** $\frac{3}{4} = \square$

Skills	Not yet	Kind of	Got it
• Finds equivalence between fractions			
• Recognises and writes decimal equivalent to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$			

Fractions and decimals

Name _____

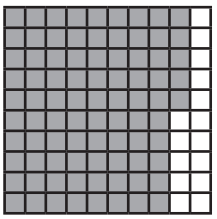
1 **Fill in the missing tenths as fractions and decimals:**



2 **Show each grid as hundredths and decimals:**

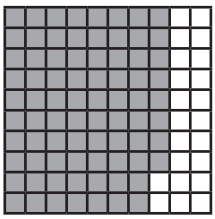
a Hundredths ☐

Decimals ☐



b Hundredths ☐

Decimals ☐



3 **The value of the digit '3' in 4.32 is '3 tenths'. What are the values of these digits:**

a '6' in 6.97

b '9' in 42.09

c '2' in 0.52

d '4' in 7.41

e '0' in 0.98

f '7' in 536.76

Skills	Not yet	Kind of	Got it
• Uses decimal notation for tenths and hundredths			
• Finds equivalence between tenths, hundredths and decimals			
• Identifies the value of digits as 1s, 10ths and 100ths			

4 **Order these decimals from smallest to largest:**

34.43 33.34 34.14 33.41 33.14

5 **Round these decimals to one decimal place:**

a 3.22 = **b** 76.06 = **c** 17.55 =

d 40.39 = **e** 101.89 = **f** 572.05 =

6 **Solve these divisions by 10 and 100:**

a 32 ÷ 10 = **b** 78 ÷ 10 = **c** 54 ÷ 100 =

d 195 ÷ 100 = **e** 604 ÷ 10 = **f** 203 ÷ 100 =

7 **Solve these decimal word problems:**

a If I buy five packets of sweets, each costing £1.25, how much money do I spend in total?

b The fastest athlete in a 100-metre race runs 10.02 seconds. The slowest runs 12.38 seconds. What is the difference in time between the fastest and slowest athletes?

Skills	Not yet	Kind of	Got it
• Compares and orders decimals up to 2 decimal places			
• Rounds decimals to 1 decimal place			
• Divides by 10 and 100			
• Solves decimal word problems			

Series E – Fractions – Student Progress Record

Name_____ Class_____ Date _____

What went well: _____

_____

_____

_____

What I need to improve: _____

_____

_____

_____

Series E – Fractions – Student Progress Record

Name_____ Class_____ Date _____

What went well: _____

_____

_____

_____

What I need to improve: _____

_____

_____

_____

ASSESSMENT ANSWERS

Pages 5–7

1a $\frac{1}{3}$

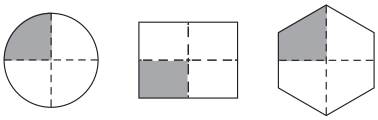
b $\frac{3}{8}$

c $\frac{7}{10}$

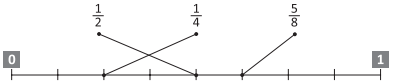
d $\frac{3}{8}$

2 Answers will vary.
Sample answer:

3 Answers will vary.
Sample answer:

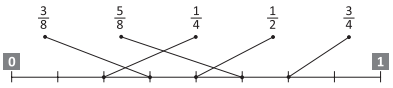


4a



b

c



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

b $\frac{1}{2}$

c $\frac{3}{8}$

d $\frac{1}{4}$

e $\frac{2}{3}$

f $\frac{1}{2}$

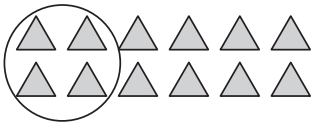
6a T

b T

c F

d T

7a



b

8a 3

b 3

c 2

d 3

e 5

f 2

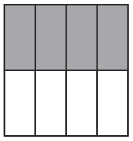
9a $\frac{1}{2} \times 36 = 6$
$36 - 6 = 30$; 30

b $\frac{4}{8} + \frac{3}{8} = \frac{7}{8}$; 1

Page 8

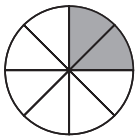
1 Answers will vary.
Sample answers:

a



$\frac{2}{4} = \frac{4}{8}$

b

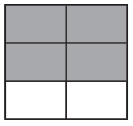


$\frac{1}{4} = \frac{2}{8}$

c

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

d



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

2a 2

b 2

c 2

d 2

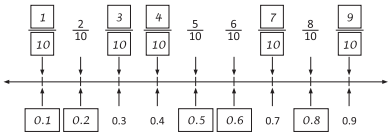
3a 0.5

b $\frac{1}{4}$

c 0.75

Pages 9–10

1



2a 85; 0.85

b 78; 0.78

3a 6 units

b 9 hundredths

c 2 hundredths

d 4 tenths

e 0 units

f 7 tenths

4 33.14; 33.34; 33.41; 34.14; 34.43

5a 3.2

b 76.1

c 17.6

d 40.4

e 101.9

f 572.1

6a 3.2

b 7.8

c 0.54

d 1.95

e 60.4

f 2.03

7a £6.25

b 2.36 seconds

Series E – Fractions

Topic	Reference	Strand	Substrand	Objective
Working with fractions	3F1b	Number	Fractions	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.
Working with fractions	3F3	Number	Fractions	Compare and order unit fractions, and fractions with the same denominators.
Working with fractions	4F10a	Number	Fractions (including decimals)	Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.
Types of fractions	4F2	Number	Fractions (including decimals)	Recognise and show, using diagrams, families of common equivalent fractions.
Fractions and decimals	4F1	Number	Fractions (including decimals)	Count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten.
Fractions and decimals	4F6a	Number	Fractions (including decimals)	Recognise and write decimal equivalents to $\frac{1}{4}; \frac{1}{2}; \frac{3}{4}$.
Fractions and decimals	4F6b	Number	Fractions (including decimals)	Recognise and write decimal equivalents of any number of tenths or hundredths.
Fractions and decimals	4F7	Number	Fractions (including decimals)	Round decimals with one decimal place to the nearest whole number.
Fractions and decimals	4F8	Number	Fractions (including decimals)	Compare numbers with the same number of decimal places up to two decimal places.
Fractions and decimals	4F9	Number	Fractions (including decimals)	Find the effect of dividing a 1- or 2-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths.