Mathletics

Fractions, Decimals and Percentages

Series G – Fractions, Decimals and Percentages
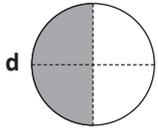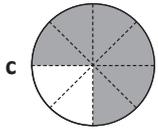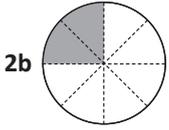
Contents

Series Authors:

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Series G – Fractions, Decimals and Percentages

Pages 1–2

1a $\dfrac{4}{6}$

b $\dfrac{6}{8}$

c 4

d 2

e $\dfrac{1}{3}, \dfrac{2}{6}$

2b

c

d

e

3a 4

b 6

c 6

d 15

e 3

f 2

g 20

h 1

4a 4

b 7

c 6

d 2

e 7

f 5

5a $\dfrac{1}{6}$

b 2; $\dfrac{2}{12}$

c No. It's the same. $\dfrac{2}{12} = \dfrac{1}{6}$

Page 3

1a

b
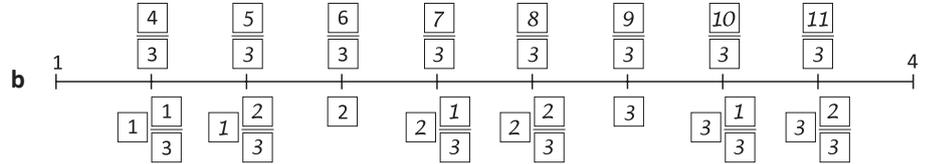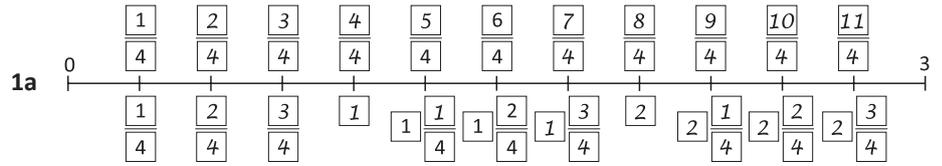
2 A2: $\dfrac{5}{4}$

A3: $\dfrac{11}{3}$

A4: $2\dfrac{2}{4}$

A5: $\dfrac{9}{3}$

A6: $3\dfrac{1}{3}$

A7: $\dfrac{12}{3}$

A8: $\dfrac{12}{2}$

A9: $\dfrac{8}{3}$

A10: $2\dfrac{1}{3}$

Pages 4–5

1a $\dfrac{1}{2}$

b $\dfrac{1}{3}$

c $\dfrac{1}{4}$

d $\dfrac{2}{3}$

2a $\dfrac{15}{20}$ HCF is $\boxed{5}$ $\longrightarrow$ $\dfrac{15 \div \boxed{5}}{20 \div \boxed{5}} = \dfrac{\boxed{3}}{\boxed{4}}$

b $\dfrac{9}{30}$ HCF is $\boxed{3}$ $\longrightarrow$ $\dfrac{9 \div \boxed{3}}{30 \div \boxed{3}} = \dfrac{\boxed{3}}{\boxed{10}}$

c $\dfrac{16}{24}$ HCF is $\boxed{8}$ $\longrightarrow$ $\dfrac{16 \div \boxed{8}}{24 \div \boxed{8}} = \dfrac{\boxed{2}}{\boxed{3}}$

d $\dfrac{12}{36}$ HCF is $\boxed{12}$ $\longrightarrow$ $\dfrac{12 \div \boxed{12}}{36 \div \boxed{12}} = \dfrac{\boxed{1}}{\boxed{3}}$

3a $\longrightarrow$ $\dfrac{4}{5}$

b $\longrightarrow$ $\dfrac{1}{2}$

c $\longrightarrow$ $\dfrac{2}{3}$

d $\dfrac{3}{4}$

4a $\dfrac{4}{7}$

b $\dfrac{3}{5}$

c $\dfrac{4}{7}$

d $\dfrac{1}{3}$

e $\dfrac{8}{9}$

f $\dfrac{3}{5}$

g $\dfrac{1}{3}$

h $\dfrac{3}{11}$

5a $\dfrac{1}{5}$

b $\dfrac{3}{5}$

c $\dfrac{1}{3}$

d $\dfrac{7}{13}$

e $\dfrac{6}{13}$

Series G – Fractions, Decimals and Percentages

Pages 4–5

6 $\dfrac{1}{2} = \dfrac{40}{80}$

$\dfrac{2}{3} = \dfrac{12}{18}$

$\dfrac{3}{5} = \dfrac{60}{100}$

$\dfrac{1}{9} = \dfrac{9}{81}$

$\dfrac{1}{4} = \dfrac{25}{100}$

$\dfrac{3}{4} = \dfrac{15}{20}$

Pages 6–7

1 $\dfrac{1}{4}, \dfrac{2}{4}, \dfrac{3}{4}, \dfrac{4}{4}, \dfrac{5}{4}, 1\dfrac{1}{2}, 1\dfrac{3}{4}$
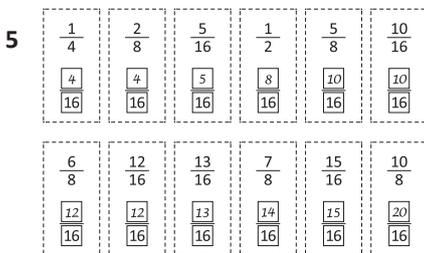
2a $\dfrac{1}{2}$

b $\dfrac{3}{4}$

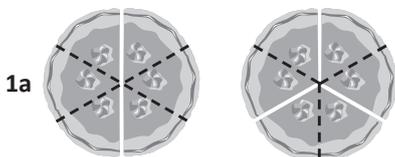**c** $\dfrac{1}{2}$

d $\dfrac{10}{12}$

3 Answers will vary.

4 Answers will vary.

5

$\dfrac{1}{4}$	$\dfrac{2}{8}$	$\dfrac{5}{16}$	$\dfrac{1}{2}$	$\dfrac{5}{8}$	$\dfrac{10}{16}$
$\dfrac{4}{16}$	$\dfrac{4}{16}$	$\dfrac{5}{16}$	$\dfrac{8}{16}$	$\dfrac{10}{16}$	$\dfrac{10}{16}$

$\dfrac{6}{8}$	$\dfrac{12}{16}$	$\dfrac{13}{16}$	$\dfrac{7}{8}$	$\dfrac{15}{16}$	$\dfrac{10}{8}$
$\dfrac{12}{16}$	$\dfrac{12}{16}$	$\dfrac{13}{16}$	$\dfrac{14}{16}$	$\dfrac{15}{16}$	$\dfrac{20}{16}$

Page 8–9

1a

b $\dfrac{1}{6}$

2a

$\dfrac{6}{12}$	$\dfrac{3}{12}$	$\dfrac{4}{12}$

b

$\dfrac{3}{6}$	$\dfrac{3}{6}$	$\dfrac{2}{6}$

2c

$\dfrac{4}{12}$	$\dfrac{3}{12}$	$\dfrac{2}{12}$

3a $\dfrac{1}{2}$ $\boxed{\dfrac{2}{3}}$ $\dfrac{3}{9}$

$\dfrac{9}{18}$	$\dfrac{12}{18}$	$\dfrac{6}{18}$

b $\dfrac{2}{5}$ $\boxed{\dfrac{1}{2}}$ $\dfrac{1}{3}$

$\dfrac{12}{30}$	$\dfrac{15}{30}$	$\dfrac{10}{30}$

c $\boxed{\dfrac{3}{4}}$ $\dfrac{2}{3}$ $\dfrac{4}{8}$

$\dfrac{18}{24}$	$\dfrac{16}{24}$	$\dfrac{12}{24}$

d $\boxed{\dfrac{3}{4}}$ $\dfrac{3}{6}$ $\dfrac{3}{8}$

$\dfrac{18}{24}$	$\dfrac{12}{24}$	$\dfrac{9}{24}$

4a $\dfrac{3}{8}$ $\dfrac{2}{4}$ $\boxed{\dfrac{5}{6}}$

$\dfrac{9}{24}$	$\dfrac{12}{24}$	$\dfrac{20}{24}$

b $\dfrac{4}{7}$ $\dfrac{1}{2}$ $\boxed{\dfrac{11}{14}}$

$\dfrac{8}{14}$	$\dfrac{7}{14}$	$\dfrac{11}{14}$

c $\dfrac{1}{3}$ $\dfrac{5}{8}$ $\boxed{\dfrac{4}{6}}$

$\dfrac{8}{24}$	$\dfrac{15}{24}$	$\dfrac{16}{24}$

d $\boxed{\dfrac{3}{4}}$ $\dfrac{2}{3}$ $\dfrac{1}{2}$

$\dfrac{9}{12}$	$\dfrac{8}{12}$	$\dfrac{6}{12}$

5 Answers will vary.

Page 10

What to do

£60

£48

£84
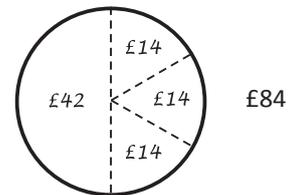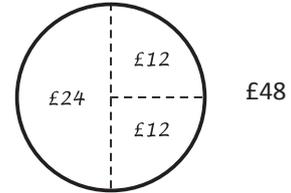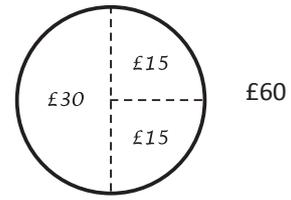
Page 11

a 20 mini chocolate bars and 4 Chuppa Chups.

b 12 gob stoppers. He missed out on 6.

c 2 Chuppa Chups.

d 12 Wizz Fizzes + 2 suckers + 30 chocolate bars = 44; 44 items

e $\dfrac{2}{5} + \dfrac{3}{5} = \dfrac{5}{5} = 1$ whole

f $1 - \dfrac{1}{4} = \dfrac{3}{4};\ 12 - 3 = 9$

Page 12

1a   0.4

b 0.9

c 1.0
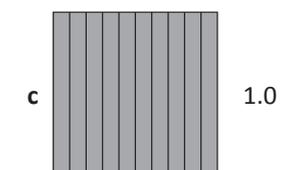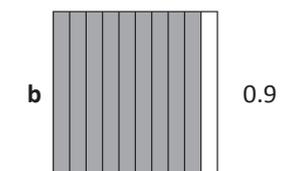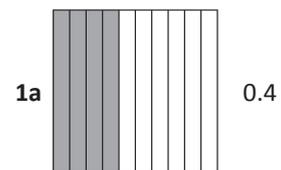
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Page 12

2a 0.61

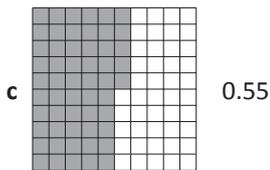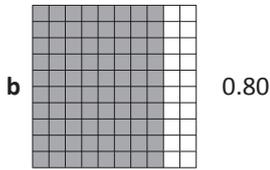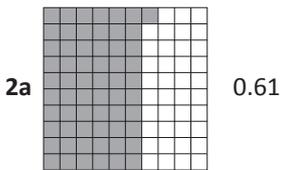**b** 0.80

c 0.55

3a 0.674

b 0.432

c 0.493

d 0.589

e 0.029

f 0.007

g 0.004

h 1.000

Page 13

1

		Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths
a	5.892				•		✓	
b	13.05				•		✓	
c	763.22		✓		•			
d	89.021				✓	•		
e	100.001					•		✓
f	560.45					•	✓	
g	312.956			✓	•			

2a 4.122

b 111.65

c 300.042

d 4,000.12

e 12.013

f 213.43

3a 2.7

b 0.48

c 9.0

d 11.12

e 1.67

Page 14

1
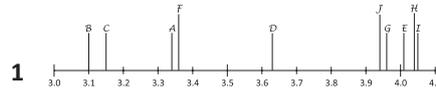
2a Double Or Nothing Danielle

b Did You See That One Big-noter

c Lone Shooter and Double Or Nothing Danielle

d 0.6 m

e Answers will vary.

Page 15

1a 67.2

b 48.1

c 124.8

d 90.1

e 54.5

f 7.1

2a 58.13

b 70.35

c 45.01

d 78.13

e 89.04

f 36.23

3 Answers will vary.

4a, b

Choice 1		
Hamburger	£4.95	£5
Can of drink	£2.25	£2
Large chips	£1.15	£1
Total		£8

Choice 2		
Jacket potato with cheese	£7.95	£8
Hot chocolate	£0.95	£1
Salad	£2.98	£3
Total		£12

Choice 3		
Salad roll	£5.15	£5
Juice	£2.25	£2
Biscuit	£1.95	£2
Total		£9

Pages 16–17

1a $\frac{60}{100}$ | 0.6 | 60%

b
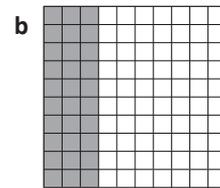
$\frac{30}{100}$ | 0.3 | 30%

c $\frac{90}{100}$ | 0.9 | 90%

d $\frac{25}{100}$ | 0.25 | 25%

e

$\frac{45}{100}$ | 0.45 | 45%

f
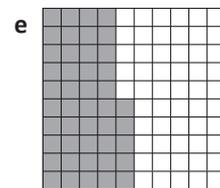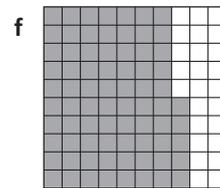
$\frac{75}{100}$ | 0.75 | 75%

g $\frac{89}{100}$ | 0.89 | 89%

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Pages 16–17

1h

| $\dfrac{50}{100}$ | 0.5 | 50% |

2a

| $\dfrac{1}{4}$ | 0.25 | 25% |

b

| $\dfrac{1}{2}$ | 0.5 | 50% |

c

| $\dfrac{3}{4}$ | 0.75 | 75% |

d

| $\dfrac{4}{4}$ | 1.0 | 100% |

3a

b

c

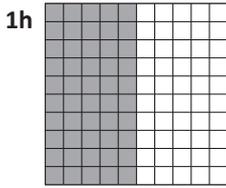**4**   Option B

5a

b

c

d
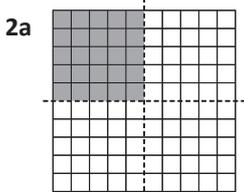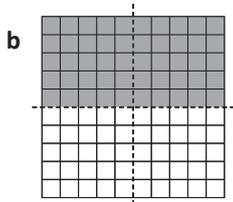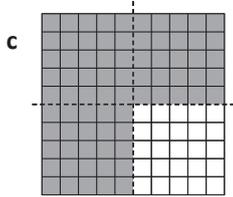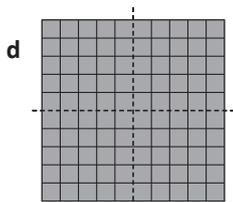
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What to do

Observe students.

What to do next

Answers will vary.

Page 19

Problem 1

a   6

b   600

c   300

Problem 2

a
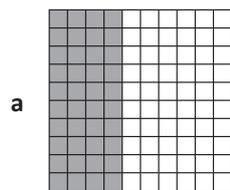
b   56

Problem 3

a   3 people

b   30

c   red

d   green
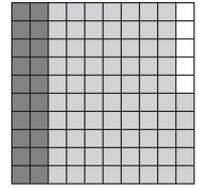
Pages 20–21

1   W O R L D M A T H S D A Y
        2 11 25 4 9 3 8 5 75 10 9 8 50

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

b $\dfrac{1}{2}$

c $\dfrac{3}{4}$

d $\dfrac{1}{3}$

e $\dfrac{1}{4}$

f $\dfrac{5}{4}$

g   Answers will vary and may include:
        <u>3.00</u> to <u>3.20</u>
        <u>4.30</u> to <u>4.50</u>
        <u>11.20</u> to <u>11.40</u>

3a   6

b   25

c   18

d   36

e   18

f   210

4a   Dylan: 90
         Nina: 45
         Natasha: 60

b   45 minutes

c   15 minutes

d   Dylan: $\dfrac{3}{2}$ or $1\dfrac{1}{2}$

         Nina: $\dfrac{3}{4}$

         Natasha: $\dfrac{1}{1}$

Series G – Fractions, Decimals and Percentages

Pages 22–23

1a £10

b £40

c £20

d £44

e £30

f £100

g £30

2 3

a 24

b 150

c 75

d 120

e 36

f 240

g 195

3 10% of 40 is _____ 4

10% of 50 is _____ 5

10% of 60 is _____ 6

10% of 100 is _____ 10

10% of 500 is _____ 50

10% of 1,000 is _____ 100

10% of 3,000 is _____ 300

5% of 40 is _____ 2

5% of 50 is _____ 2.5

5% of 60 is _____ 3

5% of 100 is _____ 5

5% of 500 is _____ 25

5% of 1,000 is _____ 50

5% of 3,000 is _____ 150

20% of 40 is _____ 8

20% of 50 is _____ 10

20% of 60 is _____ 12

20% of 100 is _____ 20

20% of 500 is _____ 100

20% of 1,000 is _____ 200

20% of 3,000 is _____ 600

4a 30, 30, 30

b 125, 125,125

c 10, 10, 10

4d 4

e 22

f 60

5a 60 ml

b 98 ml

c 120 kg

d 4.2 km

e 37.5 ml

f £63

g 60

h 54 ml

i 900

6

✔ What is 25% of 300?	✔ What is 75% of 100?	✔ What is 10% of 750?	What is 15% of 55?
What is 45% of 180?	What is 35% of 300?	✔ What is 50% of 150?	✔ What is 20% of 375?

Pages 24–25

1a 17:13; $\frac{13}{30}$

b 7:8; $\frac{7}{15}$

c 2:6 or 1:3; $\frac{2}{8}$ or $\frac{1}{4}$

2
2:5 and 4:10   1:6 and 3:16   (2/7 and 4/14)

$\frac{1}{3}$ and $\frac{2}{5}$ $\frac{3}{4}$ and $\frac{6}{10}$ (1:4 and 4:16)   (3:5 and 12:20)
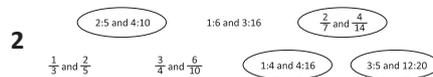
3

9	cups flour
3	teaspoons salt
6	teaspoons baking powder
$1\frac{1}{2}$	cups butter
$2\frac{1}{4}$	cups sugar
6	eggs
3	cups milk

4a 60 cm

b 20 cm

5a 1:3

b 5 cm

Page 26

1 Plasma TV £1,000

10% off _____ £100

25% off _____ £250

50% off _____ £500

60% off _____ £600

DVD £12 each

10% off _____ £1.20

25% off _____ £3

50% off _____ £6

60% off _____ £7.20

Ticket £50 each

10% off _____ £5

25% off _____ £12.50

50% off _____ £25

60% off _____ £30

Puppy £250

10% off _____ £25

25% off _____ £62.50

50% off _____ £125

60% off _____ £150

2
Item		
Hat	Saving	£3
	New price	£17
Goggles	Saving	£4.25
	New price	£80.75
Ski equipment	Saving	£25
	New price	£475
Shorts	Saving	£3
	New price	£12
Clothes	Saving	£6
	New price	£34

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Page 27

Getting ready

Observe students.

What to do

Answer will vary.

Page 28

Dilemma 1

No. Online store £40 and Shop £48
The online store is the better deal.

Dilemma 2

They result in the same answer.

Dilemma 3

Second store £162

Pages 29–31

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

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

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

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

e $1\frac{2}{12}$

f $4\frac{2}{12}$

2a $3\frac{1}{4} + 2\frac{1}{4} = 5\frac{2}{4} = 5\frac{1}{2}$ boxes

b $2\frac{3}{4} - 1\frac{1}{4} = 1\frac{2}{4} = 1\frac{1}{2}$ boxes

c $4\frac{1}{3} + 2\frac{1}{3} = 6\frac{2}{3}$ hours

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

3 Answers will vary.

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

b $4\frac{5}{4}, 5\frac{1}{4}$

c $7\frac{11}{8}, 8\frac{3}{8}$

d $19\frac{6}{5}, 20\frac{1}{5}$

5a $\frac{7}{5} - \frac{4}{5} = \frac{3}{5}$

5b $\frac{10}{4} - \frac{3}{4} = \frac{7}{4}$

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

c $\frac{17}{5} - \frac{4}{5} = \frac{13}{5}$

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

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

b $\frac{4}{10} + \frac{6}{10} = \frac{10}{10}$

c $\frac{8}{10} - \frac{2}{10} = \frac{6}{10}$

d $\frac{4}{6} + \frac{4}{6} = \frac{8}{6}$

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

f $\frac{6}{8} + \frac{1}{8} = \frac{7}{8}$

g $\frac{2}{6} + \frac{2}{3} = \frac{2}{6} + \frac{4}{6} = \frac{6}{6} = 1$ packet

h Answers will vary.

Pages 32–33

1a $\frac{9}{12}$

b $\frac{2}{7} + \frac{2}{7} + \frac{2}{7} = \frac{6}{7}$

c $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{5}{8}$

d $\frac{2}{9} + \frac{2}{9} + \frac{2}{9} = \frac{6}{9}$

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

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

c $\frac{16}{4} = 4$

d $\frac{45}{5} = 9$

3 $6 \times \frac{2}{6}$

$= \frac{2}{6} + \frac{2}{6} + \frac{2}{6} + \frac{2}{6} + \frac{2}{6} + \frac{2}{6}$

$= \frac{12}{6} = 2$

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

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

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

Yes, they are the same.

4 He must not add denominators.

$3 \times \frac{3}{8} = \frac{9}{8} = 1\frac{1}{8}$

5a $\dfrac{\boxed{4} \times \boxed{3}}{4} = \dfrac{\boxed{12}}{\boxed{4}}$

b $\dfrac{\boxed{4} \times \boxed{2}}{3} = \dfrac{\boxed{8}}{\boxed{3}}$

c $\dfrac{\boxed{5} \times \boxed{2}}{4} = \dfrac{\boxed{10}}{\boxed{4}}$

d $\dfrac{\boxed{3} \times \boxed{3}}{6} = \dfrac{\boxed{9}}{\boxed{6}}$

e $\dfrac{\boxed{2} \times \boxed{4}}{5} = \dfrac{\boxed{8}}{\boxed{5}}$

f $\dfrac{\boxed{5} \times \boxed{2}}{3} = \dfrac{\boxed{10}}{\boxed{3}}$

6a $\boxed{8} \div \boxed{4} = \boxed{2}$

b $\boxed{9} \div \boxed{3} = \boxed{3}$

c $\boxed{12} \div \boxed{6} = \boxed{2}$

d $\boxed{15} \div \boxed{5} = \boxed{3}$

e $\boxed{16} \div \boxed{4} = \boxed{4}$

f $\boxed{14} \div \boxed{7} = \boxed{2}$

g $\boxed{8} \div \boxed{2} = \boxed{4}$

h $\boxed{10} \div \boxed{5} = \boxed{2}$

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Pages 32–33

7a $\dfrac{12}{4} = \boxed{3}$

b $\dfrac{8}{3} = \boxed{2}\,\dfrac{\boxed{2}}{3}$

c $\dfrac{10}{4} = \boxed{2}\,\dfrac{\boxed{2}}{4}$

d $\dfrac{9}{6} = \boxed{1}\,\dfrac{\boxed{3}}{6}$

e $\dfrac{8}{5} = \boxed{1}\,\dfrac{\boxed{3}}{5}$

f $\dfrac{10}{3} = \boxed{3}\,\dfrac{\boxed{1}}{3}$

Pages 34

1a $\dfrac{1}{4} \div 2 = \dfrac{\boxed{1}}{4 \times \boxed{2}} = \dfrac{\boxed{1}}{8}$

b $\dfrac{1}{5} \div 3 = \dfrac{\boxed{1}}{5 \times \boxed{3}} = \dfrac{\boxed{1}}{15}$

c $\dfrac{1}{3} \div 4 = \dfrac{\boxed{1}}{3 \times \boxed{4}} = \dfrac{\boxed{1}}{12}$

d $\dfrac{3}{4} \div 2 = \dfrac{\boxed{3}}{4 \times \boxed{2}} = \dfrac{\boxed{3}}{8}$

e $\dfrac{3}{4} \div 3 = \dfrac{\boxed{3}}{4 \times \boxed{3}} = \dfrac{\boxed{3}}{12} = \dfrac{\boxed{1}}{4}$

f $\dfrac{3}{5} \div 6 = \dfrac{\boxed{3}}{5 \times \boxed{6}} = \dfrac{\boxed{3}}{30} = \dfrac{\boxed{1}}{10}$

2a $\dfrac{1}{\boxed{3}} \div 3 = \dfrac{1}{\boxed{3} \times 3} = \dfrac{1}{9}$

b $\dfrac{1}{\boxed{4}} \div 4 = \dfrac{1}{\boxed{4} \times 4} = \dfrac{1}{16}$

c $\dfrac{2}{7} \div \boxed{3} = \dfrac{2}{7 \times \boxed{3}} = \dfrac{2}{21}$

d $\dfrac{5}{6} \div 2 = \dfrac{5}{\boxed{6} \times 2} = \dfrac{1}{12}$

e $\dfrac{4}{5} \div 4 = \dfrac{4}{\boxed{5} \times 4} = \dfrac{4}{20} = \dfrac{\boxed{1}}{5}$

f $\dfrac{3}{4} \div \boxed{6} = \dfrac{3}{4 \times \boxed{6}} = \dfrac{3}{\boxed{23}} = \dfrac{1}{8}$

Pages 35

1a $\dfrac{1}{4} \times \dfrac{1}{3} = \dfrac{\boxed{1} \times \boxed{1}}{4 \times \boxed{3}} = \dfrac{\boxed{1}}{12}$

b $\dfrac{1}{3} \times \dfrac{1}{5} = \dfrac{\boxed{1} \times \boxed{1}}{3 \times \boxed{5}} = \dfrac{\boxed{1}}{15}$

c $\dfrac{1}{6} \times \dfrac{1}{3} = \dfrac{\boxed{1} \times \boxed{1}}{6 \times \boxed{3}} = \dfrac{\boxed{1}}{18}$

d $\dfrac{1}{7} \times \dfrac{1}{6} = \dfrac{\boxed{1} \times \boxed{1}}{7 \times \boxed{6}} = \dfrac{\boxed{1}}{42}$

2a $\dfrac{2}{3} \times \dfrac{1}{6} = \dfrac{\boxed{2} \times \boxed{1}}{3 \times \boxed{6}} = \dfrac{\boxed{2}}{18} = \dfrac{\boxed{1}}{9}$

b $\dfrac{1}{3} \times \dfrac{3}{4} = \dfrac{\boxed{1} \times \boxed{3}}{3 \times \boxed{4}} = \dfrac{\boxed{3}}{12} = \dfrac{\boxed{1}}{4}$

c $\dfrac{2}{5} \times \dfrac{3}{4} = \dfrac{\boxed{2} \times \boxed{3}}{5 \times \boxed{4}} = \dfrac{\boxed{6}}{20} = \dfrac{\boxed{3}}{10}$

d $\dfrac{3}{4} \times \dfrac{6}{7} = \dfrac{\boxed{3} \times \boxed{6}}{4 \times \boxed{7}} = \dfrac{\boxed{18}}{28} = \dfrac{\boxed{9}}{14}$

3a $\dfrac{1}{4} \times \dfrac{1}{\boxed{2}} = \dfrac{1}{8}$

b $\dfrac{2}{\boxed{3}} \times \dfrac{1}{5} = \dfrac{2}{15}$

c $\dfrac{1}{\boxed{11}} \times \dfrac{1}{3} = \dfrac{1}{33}$

d $\dfrac{2}{5} \times \dfrac{\boxed{3}}{4} = \dfrac{6}{\boxed{20}} = \dfrac{3}{\boxed{10}}$

3e $\dfrac{3}{5} \times \dfrac{5}{6} = \dfrac{\boxed{15}}{30} = \dfrac{\boxed{1}}{2}$

Pages 36

1b We get 6, 3, 1 (ones)

c We get 0.6, 0.3, 0.1 (tenths)

d We get 16, 23, 34 (tens and ones)

e We get 1.6, 2.3, 3.1, 4.9 (ones and tenths)

2

	× 10	× 100	× 1,000
0.5	5	50	500
0.25	2.5	25	250
0.37	3.7	37	370
1.2	12	120	1,200
7.34	73.4	734	7,340

3a 7

b 90

c 3

d 15

e 270

f 45

g 25.5

h 5.55

i 178

Page 37

1

	÷ 10	÷ 100	÷ 1,000
50	5	0.5	0.05
25	2.5	0.25	0.025
37.2	3.72	0.372	0.0372
48.5	4.85	0.485	0.0485
542	54.2	5.42	0.542

2a 7.2

b 0.048

c 0.352

d 9.205

e 0.3457

f 0.5507

3a–d Answers will vary.

Series G – Fractions, Decimals and Percentages

1a
```
      2 . 6
  ×       2
  ─────────
      5 . 2
      1
```

b
```
      3 . 7
  ×       4
  ─────────
  1   4 . 8
      2
```

c
```
      5 . 2
  ×       5
  ─────────
  2   6 . 0
      1
```

d
```
      8 . 4
  ×       8
  ─────────
  6   7 . 2
      3
```

e
```
  1   4 . 5
  ×       3
  ─────────
  4   3 . 5
  1   1
```

f
```
  2   4 . 5
  ×       7
  ─────────
1 7   1 . 5
  3   3
```

2a
```
      3 . 2   3
  ×           4
  ─────────────
  1   2 . 9   2
          1
```

b
```
      5 . 3   3
  ×           3
  ─────────────
  1   5 . 9   9
```

c
```
      8 . 4   2
  ×           8
  ─────────────
  6   7 . 3   6
      3       1
```

2d
```
      7 . 4   4
  ×           6
  ─────────────
  4   4 . 6   4
      2       2
```

e
```
      6 . 2   8
  ×           4
  ─────────────
  2   5 . 1   2
          1   3
```

f
```
      3 . 4   5
  ×           8
  ─────────────
  2   7 . 6   0
          3   4
```

3a
```
      2 . 4   5
  ×           3
  ─────────────
£ 7 . 3   5
  1   1
```

b
```
      4 . 9   5
  ×           4
  ─────────────
£ 1   9 . 8   0
      3   2
```

c
```
      1   4 . 9   5
  ×               3
  ─────────────────
£ 4   4 . 8   5
  1   2       1
```

4b 5 × 3.4 = ⌐17.0¬
3.4 is 34 tenths
```
      3   4
  ×       5
  ─────────
  1   7   0
      2
```
3 × 3.4 = 17.0

c 4 × 9.7 = ⌐38.8¬
9.7 is 97 tenths
```
      9   7
  ×       4
  ─────────
  3   8   8
      2
```
4 × 9.7 = 38.8

4d 7 × 1.9 = ⌐13.3¬
1.9 is 19 tenths
```
      1   9
  ×       7
  ─────────
  1   3   3
      6
```
7 × 1.9 = 13.3

5b 5 × 3.42 = ⌐17.1¬
3.42 is 342 hths
```
  3   4   2
  ×       5
  ─────────
1 7   1   0
      2   1
```
5 × 3.42 = 17.1

c 4 × 9.73 = ⌐38.92¬
9.73 is 973 hths
```
  9   7   3
  ×       4
  ─────────
3 8   9   2
      2   1
```
4 × 9.73 = 38.92

d 7 × 1.94 = ⌐13.58¬
1.94 is 194 hths
```
  1   9   4
  ×       7
  ─────────
1 3   5   8
      6   2
```
7 × 1.94 = 13.58

6a 4.71 m

b £31.85

7a £42.00

b £14.00

c £13.50

d £12.20

e Answers will vary.

Series G – Fractions, Decimals and Percentages

Pages 41–43

1a 8 | 85.6 = 10.7 (with ^{5}6)

b 5 | 47.0 = 09.4 (with ^{2}0)

c 7 | 58.1 = 8.3 (with ^{2}1)

d 5 | 63.5 = 12.7 (with ^{1}3 ^{3}5)

e 5 | 99.0 = 19.8 (with ^{4}9 ^{4}0)

f 6 | 72.30 = 12.05 (with ^{1}2)

2 First bill:
Total £20.20; £5.05 each

Second bill:
Total £53.20; £13.30 each

3a 7 | £248.15 = £35.45 (with ^{3}8 . ^{3}1 ^{3}5)

b £248.15 ÷ 5 = £49.63

c 5 | £11.25 = £2.25 (with ^{1}2 ^{2}5)

4 49 ÷ 8 = 6.125

Page 43

What to do

1 42.4

2 53.6

3 96.3

4 16

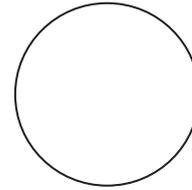**What to do next**

Answers will vary.

Fractions

1   **Divide and shade the objects to show the following equivalent fractions:**

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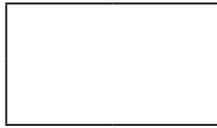
b $\frac{1}{4} = \frac{2}{8}$

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

....
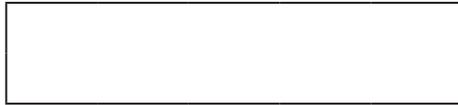
2   **Show the following equivalent fractions:**

a $\frac{1}{3} = \frac{\square}{9}$ **b** $\frac{2}{4} = \frac{\square}{2}$ **c** $\frac{1}{4} = \frac{\square}{8}$ **d** $\frac{3}{4} = \frac{15}{\square}$

....

3   **In each group, circle the equivalent fractions:**

a $\frac{1}{2}$ $\frac{2}{5}$ $\frac{2}{4}$ $\frac{1}{3}$ $\frac{50}{100}$ **b** $\frac{2}{3}$ $\frac{4}{10}$ $\frac{1}{2}$ $\frac{2}{5}$ $\frac{40}{100}$

....

4   **Find the highest common factor (HCF) for each pair:**

a   16   8 $\square$ **b**   20   25 $\square$ **c**   24   18 $\square$ **d**   15   20 $\square$

....

5   **Find the HCF then simplify these fractions to their lowest terms:**

a $\frac{7}{14} = \frac{\square}{\square}$ HCF $\square$ **b** $\frac{10}{100} = \frac{\square}{\square}$ HCF $\square$ **c** $\frac{25}{100} = \frac{\square}{\square}$ HCF $\square$

d $\frac{12}{24} = \frac{\square}{\square}$ HCF $\square$ **e** $\frac{75}{100} = \frac{\square}{\square}$ HCF $\square$ **f** $\frac{35}{50} = \frac{\square}{\square}$ HCF $\square$

....

6   **Make a path across the page by colouring any fractions that are equivalent to $\frac{6}{10}$:**

START $\frac{36}{60}$ $\frac{24}{40}$ $\frac{8}{12}$ $\frac{30}{50}$ $\frac{15}{32}$ $\frac{48}{80}$ $\frac{12}{20}$ $\frac{42}{70}$ $\frac{11}{24}$ FINISH

Fractions

7 **Look carefully at the number line and fill in the missing information:**

The number line runs from 1 to 4.

Top boxes: $\frac{4}{3}$, $\frac{\square}{\square}$, $\frac{6}{3}$, $\frac{\square}{\square}$, $\frac{\square}{\square}$, $\frac{\square}{\square}$, $\frac{\square}{\square}$, $\frac{\square}{\square}$

Bottom boxes: $1\frac{1}{3}$, $\square\frac{\square}{\square}$, 2, $\square\frac{\square}{\square}$, $\square\frac{\square}{\square}$, $\square$, $\square\frac{\square}{\square}$, $\square\frac{\square}{\square}$

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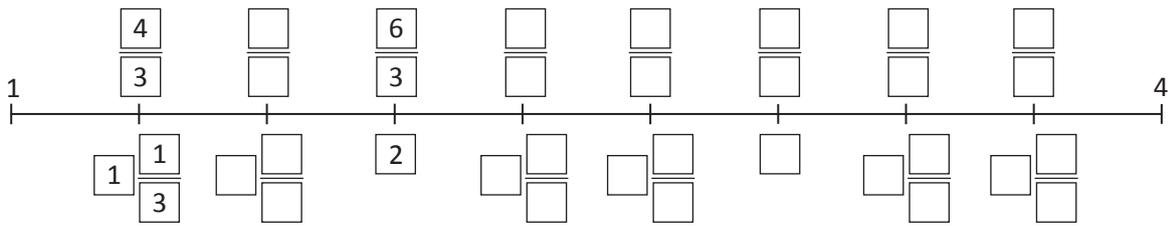
8 **Write the matching improper fraction or mixed number for:**

a $1\frac{1}{4} = \frac{\square}{\square}$

b $\frac{5}{2} = \square\frac{\square}{\square}$

c $1\frac{1}{3} = \frac{\square}{\square}$

d $\frac{8}{6} = \square\frac{\square}{\square}$

---

9 **Order these fractions from smallest to largest. You may need to rename:**   Working space

a $\frac{2}{5}$ $\frac{1}{5}$ $\frac{10}{5}$ $\frac{3}{5}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$

b $\frac{1}{4}$ $\frac{1}{2}$ $\frac{3}{8}$ $\frac{12}{16}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$

c $\frac{3}{8}$ $\frac{2}{4}$ $\frac{5}{6}$ $\frac{4}{24}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$ $\frac{\square}{\square}$

---

10 **Write a fraction that is larger than the following. It must have a different denominator. It can have a different numerator:**

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

b $\frac{1}{4}$ $\frac{\square}{\square}$

c $\frac{2}{3}$ $\frac{\square}{\square}$

d $\frac{4}{5}$ $\frac{\square}{\square}$

| Skills	Not yet	Kind of	Got it
• Recognises, represents and creates equivalent fractions			
• Finds HCF for related numbers			
• Simplifies fractions to lowest common form			
• Matches improper fractions to mixed numbers			
• Converts between improper fractions and mixed numbers			
• Compares and orders fractions with like denominators			
• Compares and orders fractions with related denominators			

Decimal fractions

Name _____

1 **Fill in the missing information:**

a

$\dfrac{60}{100}$ | 0.

b

—— | 0.33

c

—— | 0.

d
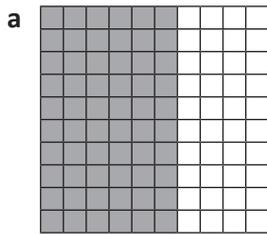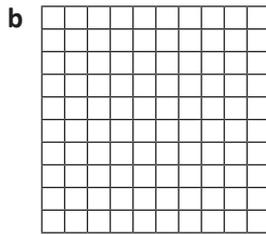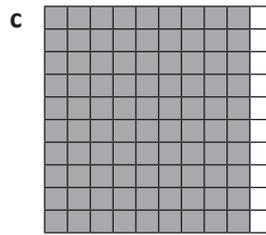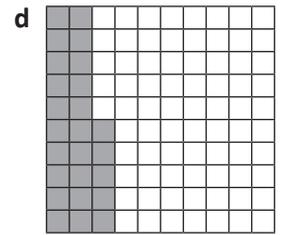
—— | 0.

2 **Look at this number line. Write what the numbers a to h represent:**

a →

b →

c →

d →

1.08
1.085
1.09
1.095

e ←
f ←
g ←
h ←
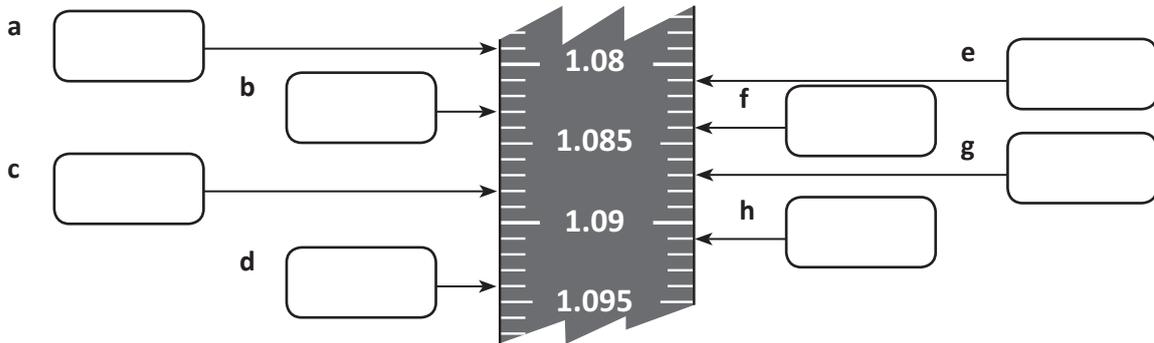
3 **Express these as decimal fractions:**

a 4 tenths, 8 hundredths, 3 thousandths

b $\dfrac{587}{1,000}$

c 5 ones, 9 hundredths, 3 thousandths

d 4 ones, 8 tenths, 6 thousandths

4 **In each example find the value of the digit in bold. Write one, tenth, hundredth or thousandth:**

a 5.**8**2

b 63.22**7**

c 13.0**5**3

d 124.0**7**0

5 **Circle the larger number:**

a 4.098   4.980

b 13.352   1.3352

6 **Look at the decimal number below. Write a decimal number that is smaller than it to the left.**
Write a decimal number that is greater than it to the right:

34.672

Decimal fractions

7   **Fill in the missing information:**

a   43 hundredths is also [ ] tenths + [ ] hundredths

b   99 hundredths is also [ ] tenths + [ ] hundredths

c   0 tenths and 8 hundredths is also [ ] hundredths

d   1 tenth and 6 hundredths is also [ ] hundredths

e   7 tenths 6 hundredths and 8 thousandths is also [ ] thousandths

f   433 thousandths is also [ ] tenths + [ ] hundredths + [ ] thousandths

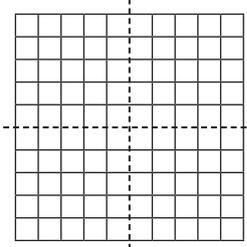**g**   76 thousandths is also [ ] tenths + [ ] hundredths + [ ] thousandths

8   **Round these numbers to the nearest tenth:**

a   67.23 _____   **b**   48.07 _____   **c**   124.78 _____   **d**   90.14 _____

9   **Round these numbers to the nearest hundredth:**

a   58.127 _____   **b**   70.345 _____   **c**   45.007 _____   **d**   78.134 _____

10   **Shade the following fractions and fill in the missing information:**

a

| $\frac{1}{4}$ | 0. [ ] | [ ] % |

b

| $\frac{3}{4}$ | 0. [ ] | [ ] % |

c

| $\frac{1}{2}$ | 0. [ ] | [ ] % |

d

| $\frac{6}{10}$ | 0. [ ] | [ ] % |

Skills	Not yet	Kind of	Got it
• Matches common fractions to decimal fractions			
• Places decimals (ones, tenths and hundredths) on a number line			
• Identifies place value of numbers to 3 decimal places			
• Compares and orders decimals to 3 decimal places			
• Rounds to the nearest tenth/hundredth			
• Recognises common percentages and relates to fractions			

Fractions of an amount

1 **What is:**

a $\frac{1}{4}$ of 16 [ ]

b $\frac{1}{2}$ of 100 [ ]

c $\frac{1}{3}$ of 90 [ ]

d $\frac{1}{7}$ of 63 [ ]

e $\frac{1}{4}$ of 200 [ ]

f $\frac{1}{8}$ of 96 [ ]

2 **What is:**

a $\frac{2}{3}$ of 15 [ ]

b $\frac{3}{4}$ of 20 [ ]

c $\frac{2}{8}$ of 24 [ ]

d $\frac{3}{10}$ of 100 [ ]

e $\frac{4}{10}$ of 80 [ ]

f $\frac{7}{8}$ of 56 [ ]

3 **What is:**

a 25% of 100 [ ]

b 25% of 200 [ ]

c 25% of 50 [ ]

d 75% of 100 [ ]

e 75% of 200 [ ]

f 75% of 80 [ ]

4 **The following items are on special. Calculate the savings and the new price:**

£60 − 25% off

Saving _____

New price _____
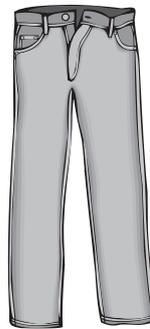
£50 − 10% off

Saving _____

New price _____

£80 − 40% off

Saving _____

New price _____

£80 − $\frac{2}{10}$ off

Saving _____

New price _____

Skills	Not yet	Kind of	Got it
• Finds unit fractions of amounts when answer is whole number			
• Finds fractions of amounts when answer is whole number			
• Finds percentages of amounts using patterns			
• Calculates discounts			

Fractions of an amount

Name _____

5   **Complete the following word problems:**

a   There are 6 red apples and 5 green apples in a bag. Express the ratio of red to green apples in the form a:b and the ratio of green apples to the total number of apples as a fraction:

b   A boy in a large family has 3 brothers and 2 sisters. Express the ratio of girls to boys in the family in the form a:b and the ratio of boys to the total number of children as a fraction. Simplify your answers:

....

6   **I want to make biscuits for a party. My recipe below makes 12 biscuits but I need 36. How much of each ingredient will I need to make enough biscuits for my party?**

To make 12:

2 cups flour

3 teaspoons baking powder

2 tablespoons sugar

1 teaspoon salt

$\frac{1}{3}$ cup oil

$\frac{2}{3}$ cup milk

To make 36:

[ ] cups flour

[ ] teaspoons baking powder

[ ] tablespoons sugar

[ ] teaspoons salt

[ ] cup oil

[ ] cups milk

....

7   **The pictures below are in proportion, but not to scale.**

a   The large cow is 2.7 m long. The small cow is 0.9 m long. Express the ratio of the small to the large cow in the form a:b.

[ ]
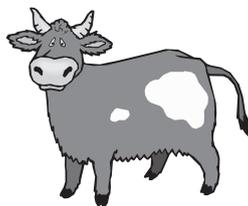
b   The ratio of the size of the small sweet to the large sweet is 1:4. If the large sweet is 6 cm long, how long is the small sweet?

[ ]

....
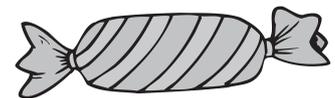
Skills	Not yet	Kind of	Got it
• Expresses ratios in the form a:b and as fractions			
• Solves problems involving relative sizes of quantities			
• Solves problems involving similar shapes in proportion			

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Calculating

Name _____

1 Solve these addition and subtraction problems:

a $\dfrac{1}{4} + \dfrac{2}{4} = \dfrac{\square}{\square}$

b $6\dfrac{1}{5} + 1\dfrac{3}{5} = \square\dfrac{\square}{\square}$

c $\dfrac{5}{8} - \dfrac{3}{8} = \dfrac{\square}{\square}$

d $3\dfrac{3}{12} - 1\dfrac{1}{12} = \square\dfrac{\square}{\square}$

2 Solve these problems. Show your working out:

a Lisa has $\dfrac{3}{4}$ of a packet of chocolate. Bart also has $\dfrac{3}{4}$ of a packet. How much chocolate do they have in total?

b Niah has $4\dfrac{3}{4}$ packets of biscuits and gives $2\dfrac{1}{4}$ to her friend. How many is she left with?

c $\dfrac{2}{4} + \dfrac{3}{8} =$

d Achmed spends $\dfrac{3}{4}$ of an hour on Live Mathletics on Monday. On Tuesday, he spends $\dfrac{1}{2}$ an hour. Write the amount of time he has spent as a fraction:

What is this in minutes?
_____

3 Use repeated addition to multiply these fractions. Express your answer as an improper fraction and as a mixed number if necessary:

a $3 \times \dfrac{1}{6} = \dfrac{\square}{\square} + \dfrac{\square}{\square} + \dfrac{\square}{\square} = \dfrac{\square}{\square}$

b $2 \times \dfrac{5}{8} = \dfrac{\square}{\square} + \dfrac{\square}{\square} = \dfrac{\square}{\square} = \square\dfrac{\square}{\square}$

c $3 \times \dfrac{3}{8} = \dfrac{\square}{\square} + \dfrac{\square}{\square} + \dfrac{\square}{\square} = \dfrac{\square}{\square} = \square\dfrac{\square}{\square}$

d $4 \times \dfrac{5}{7} = \dfrac{\square}{\square} + \dfrac{\square}{\square} + \dfrac{\square}{\square} + \dfrac{\square}{\square} = \dfrac{\square}{\square} = \square\dfrac{\square}{\square}$

4 Multiply these fractions. Express the answers as improper fractions:

a $3 \times \dfrac{3}{4}$

$\dfrac{\square \times \square}{4} = \dfrac{\square}{\square}$

b $3 \times \dfrac{2}{4}$

$\dfrac{\square \times \square}{\square} = \dfrac{\square}{\square}$

c $5 \times \dfrac{3}{5}$

$\dfrac{\square \times \square}{\square} = \dfrac{\square}{\square}$

d $2 \times \dfrac{3}{6}$

$\dfrac{\square \times \square}{\square} = \dfrac{\square}{\square}$

Calculating

5 Solve these division problems. Simplify your answers:

a $\frac{1}{2} \div 3 = \frac{\square}{\square}$

b $\frac{1}{3} \div 4 = \frac{\square}{\square}$

c $\frac{2}{3} - 6 = \frac{\square}{\square}$

d $\frac{4}{5} \div 4 = \frac{\square}{\square}$

....

6 Solve these multiplication problems. Simplify your answers:

a $\frac{1}{2} \times \frac{1}{5} = \frac{\square}{\square}$

b $\frac{2}{3} \times \frac{1}{5} = \frac{\square}{\square}$

c $\frac{3}{4} \times \frac{2}{7} = \frac{\square}{\square}$

d $\frac{3}{8} \times \frac{2}{3} = \frac{\square}{\square}$

....

7 Solve these multiplication problems:

a 4×3.221

b 5×6.78

c 8×4.916

....

8 Solve these division problems. Express any remainders as decimals:

a $4 \overline{\smash{)}1\ 6\ .\ 5\ 6}$

b $3 \overline{\smash{)}2\ 3\ .\ 2\ 5}$

c $4 \overline{\smash{)}3\ 5}$

Calculating

9   **Solve these problems. Choose which operation you will use and show your working out:**

a   Jock buys 4 boxes of golf balls. Each box costs him £55.99. How much does he spend in total?

b   Lizzie, Daniel and Ky are all 1.67 m tall. What is their combined height?

c   You order a hamburger costing £4.95, a drink costing £1.95 and fries costing £1.85. What is the total cost of your order?

d   You and 3 friends go out for pizza. The bill comes to £25.60. What is your share if you split the bill evenly?

10   **Multiply these numbers by 10, 100 or 1,000:**

	× 10	× 100	× 1,000
4			
3.7			
4.28			

11   **Divide these numbers by 10, 100 or 1,000:**

	÷ 10	÷ 100	÷ 1,000
60			
32			
76.31			

Skills	Not yet	Kind of	Got it
• Divides fractions by whole numbers			
• Multiplies pairs of fractions			
• Multiplies decimals by single whole numbers			
• Divides decimals by single whole numbers			
• Multiplies decimals by 10, 100, 1,000			
• Divides decimals by 10, 100, 1,000			

Series G – Fractions, Decimals and Percentages – Student Progress Record

Name_____ Class_____ Date _____

What went well: _____

_____

_____

_____

What I need to improve: _____

_____

_____

_____

- ✂

Series G – Fractions, Decimals and Percentages – Student Progress Record

Name_____ Class_____ Date _____

What went well: _____

_____

_____

_____

What I need to improve: _____

_____

_____

_____

Series G – Fractions, Decimals and Percentages

ASSESSMENT ANSWERS

Pages 10–11

1a

b

c
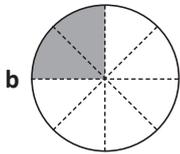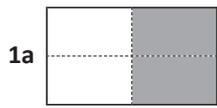
2a 3

b 1

c 2

d 20

3a $\frac{1}{2}$ $\frac{2}{5}$ $\frac{2}{4}$ $\frac{1}{3}$ $\frac{50}{100}$

b $\frac{2}{3}$ $\frac{4}{10}$ $\frac{1}{2}$ $\frac{2}{5}$ $\frac{40}{100}$

4a 8

b 5

c 6

d 5

5a $\frac{7}{14} = \frac{1}{2}$ HCF 7
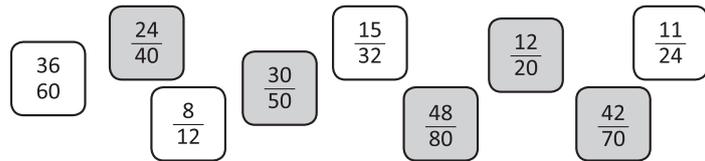
b $\frac{10}{100} = \frac{1}{10}$ HCF 10

c $\frac{25}{100} = \frac{1}{4}$ HCF 25

d $\frac{12}{24} = \frac{1}{2}$ HCF 12

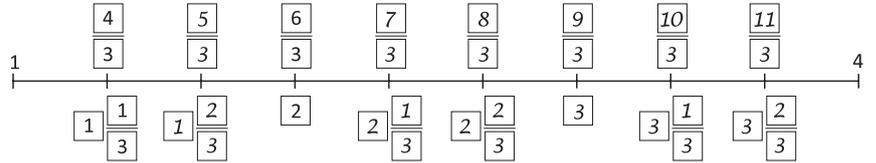**e** $\frac{75}{100} = \frac{3}{4}$ HCF 25

f $\frac{35}{50} = \frac{7}{10}$ HCF 5

---

6 $\frac{36}{60}$ $\frac{24}{40}$ $\frac{8}{12}$ $\frac{30}{50}$ $\frac{15}{32}$ $\frac{12}{20}$ $\frac{48}{80}$ $\frac{42}{70}$ $\frac{11}{24}$

7

1 ———————————————————— 4

Top: $\frac{4}{3}$ $\frac{5}{3}$ $\frac{6}{3}$ $\frac{7}{3}$ $\frac{8}{3}$ $\frac{9}{3}$ $\frac{10}{3}$ $\frac{11}{3}$

Bottom: $1\frac{1}{3}$ $1\frac{2}{3}$ 2 $2\frac{1}{3}$ $2\frac{2}{3}$ 3 $3\frac{1}{3}$ $3\frac{2}{3}$

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

b $\frac{5}{2} = 2\frac{1}{2}$

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

d $\frac{8}{6} = 1\frac{2}{6}$

9a $\frac{1}{5}$ $\frac{2}{5}$ $\frac{3}{5}$ $\frac{10}{5}$
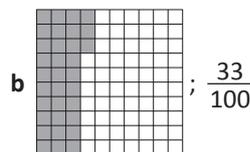
b $\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{12}{16}$

c $\frac{4}{24}$ $\frac{3}{8}$ $\frac{2}{4}$ $\frac{5}{6}$

10a–d Answers will vary.

Pages 12–13

1a 0.6(0)

b ; $\frac{33}{100}$

c $\frac{90}{100}$; 0.9(0)

d $\frac{25}{100}$; 0.9(0)

2a 1.079

b 1.083

c 1.088

d 1.094

e 1.081

f 1.084

g 1.087

h 1.091

3a 0.483

b 0.587

c 5.093

d 4.806

4a tenth

b thousandth

c hundredth

d hundredth

5a 4.980

b 13.352

6 Answers will vary.

7a 4, 3

b 9, 9

c 8

d 16

e 768

f 4, 3, 3

g 0, 7, 6

Series G – Fractions, Decimals and Percentages

Pages 12–13

8a 67.2

b 48.1

c 124.8

d 90.1

9a 58.13

b 70.35

c 45.01

d 78.13

10a ____ , 0.25, 25%

b ____ , 0.75, 75%

c ____ , 0.5, 50%

d ____ , 0.6, 60%
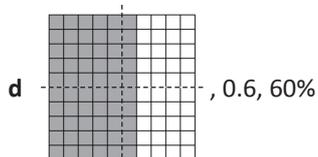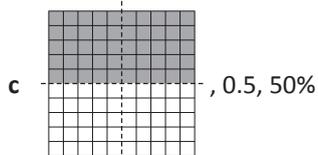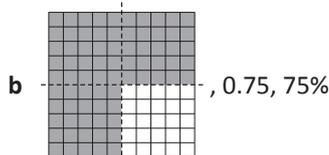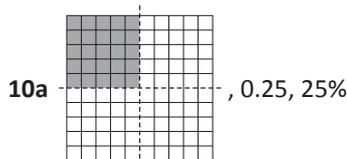
Pages 14–15

1a 4

b 50

c 30

d 9

e 50

f 12

2a 10

b 15

c 6

d 30

e 32

f 49

3a 25

b 50

c 12.50

d 75

e 150

f 60

4

Saving	£15
New price	£45

Saving	£5
New price	£45

Saving	£32
New price	£48

Saving	£16
New price	£64

5a 6:5, $\frac{5}{11}$

b 1:2, $\frac{2}{3}$

6

6	cups flour
9	teaspoons baking powder
6	tablespoons sugar
3	teaspoons salt
1	cup oil
2	cups milk

7a 1:3

b 1.5 cm

Pages 16–18

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

b $7\frac{4}{5}$

c $\frac{2}{8}$

d $2\frac{2}{12}$

2a $\frac{3}{4} + \frac{3}{4} = \frac{6}{4}$ or $1\frac{2}{4}$ or $1\frac{1}{2}$

2b 4 − 2 = 2

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

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

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

$\frac{4}{8} + \frac{3}{8} = \frac{7}{8}$

d $\frac{3}{4} + \frac{2}{4} = \frac{5}{4}$ or $1\frac{1}{4}$; 75 minutes

3a $3 \times \frac{1}{6} = \boxed{\frac{1}{6}} + \boxed{\frac{1}{6}} + \boxed{\frac{1}{6}} = \boxed{\frac{3}{6}}$

b $2 \times \frac{5}{8} = \boxed{\frac{5}{8}} + \boxed{\frac{5}{8}} = \boxed{\frac{10}{8}} = \boxed{1}\boxed{\frac{2}{8}}$

c $3 \times \frac{3}{8} = \boxed{\frac{3}{8}} + \boxed{\frac{3}{8}} + \boxed{\frac{3}{8}} = \boxed{\frac{9}{8}} = \boxed{1}\boxed{\frac{1}{8}}$

d $4 \times \frac{5}{7} = \boxed{\frac{5}{7}} + \boxed{\frac{5}{7}} + \boxed{\frac{5}{7}} + \boxed{\frac{5}{7}} = \boxed{\frac{20}{7}} = \boxed{2}\boxed{\frac{6}{7}}$

4a $\frac{\boxed{3} \times \boxed{3}}{4} = \frac{\boxed{9}}{\boxed{4}}$

b $\frac{\boxed{3} \times \boxed{2}}{\boxed{4}} = \frac{\boxed{6}}{\boxed{4}}$

c $\frac{\boxed{5} \times \boxed{3}}{\boxed{5}} = \frac{\boxed{15}}{\boxed{5}}$

d $\frac{\boxed{2} \times \boxed{3}}{\boxed{6}} = \frac{\boxed{6}}{\boxed{6}}$

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

b $\frac{1}{12}$

c $\frac{1}{9}$

d $\frac{1}{5}$

6a $\frac{1}{10}$

b $\frac{2}{15}$

Pages 16–18

6c $\dfrac{3}{14}$

  d $\dfrac{1}{4}$

7a

```
        3 . 2  2  1
  ×                 4
  ─────────────────────
      1  2 . 8  8  4
        □  □  □  □
```

  b

```
        6 . 7  8
  ×              5
  ─────────────────
     3  3 . 9  0
       □  ③  ④
```

  c

```
        4 . 9  1  6
  ×                 8
  ─────────────────────
     3  9 . 3  2  8
       □  ⑦  ①  ④
```

8a

```
            4 . 1   4
  4 | 1  6 . 5  ¹6
```

  b

```
            7 . 7   5
  3 | 2  3 . ²2  ¹5
```

  c

```
            8 . 7   5
  4 | 3  5 . ³0  ²0
```

9 Strategies will vary.

  a £223.96

  b 5.01 m

  c £8.75

  d £6.40

10

	× 10	× 100	× 1,000
4	40	400	4,000
3.7	37	370	3,700
4.28	42.8	428	4,280

11

	÷ 10	÷ 100	÷ 1,000
60	6	0.6	0.06
32	3.2	0.32	0.032
76.31	7.631	0.7631	0.07631

Series G – Fractions, Decimals and Percentages

Topic	Reference	Strand	Substrand	Objective
Fractions	6F2	Number	Fractions (including decimals and percentages)	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.
Fractions	6F3	Number	Fractions (including decimals and percentages)	Compare and order fractions, including fractions >1.
Decimal Fractions	6F6	Number	Fractions (including decimals and percentages)	Associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction (e.g. $\frac{3}{8}$).
Decimal Fractions	6F9a	Number	Fractions (including decimals and percentages)	Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1,000 where the answers are up to three decimal places.
Decimal Fractions	6F10	Number	Fractions (including decimals and percentages)	Solve problems which require answers to be rounded to specified degrees of accuracy.
Fractions of an Amount	6R1	Ratio and Proportion	-	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.
Fractions of an Amount	6R2	Ratio and Proportion	-	Solve problems involving the calculation of percentages (e.g. of measures) such as 15% of 360 and the use of percentages for comparison.
Calculating	6F4	Number	Fractions (including decimals and percentages)	Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
Calculating	6F5a	Number	Fractions (including decimals and percentages)	Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$).
Calculating	6F5b	Number	Fractions (including decimals and percentages)	Divide proper fractions by whole numbers (e.g. $\frac{1}{3} \div 2 = \frac{1}{6}$).
Calculating	6F9b	Number	Fractions (including decimals and percentages)	Multiply 1-digit numbers with up to two decimal places by whole numbers.
Calculating	6F9c	Number	Fractions (including decimals and percentages)	Use written division methods in cases where the answer has up to two decimal places.