

Counting in 4s, 8s, 50s and 100s Page 8

Ruby

- 1 Add 2
- 2 Add 10
- 3 Add 3
- 4 10, 30, 35
- 5 52, 62, 102
- 6 31, 51, 61

Pearl

- 1 12, 16, 20
- 2 24, 32, 48
- 3 300, 400, 600
- 4 75
- 5 350
- 6 14

Diamond

- 1 Horizontal row: 12 / Vertical column: 3, 23
- 2 600
- 3 60 is a multiple of 4 so will appear in the number sequence, but only if Dan starts at 0 or any multiple of 4.

Finding 10 or 100 more or less Page 9

Ruby

- 1 **a** 97 **b** 90 **c** 200
2 **a** 126 **b** 79 **c** 500

Pearl

- 1 **a** 552 **b** 611 **c** 304 **d** 615
2 eight hundred and eighty-nine
3 one thousand and nine
4 four hundred and seventy-five
5 three hundred and three
6 one thousand and fifteen

Diamond

- 1 It is only sometimes true because if you add 10 to a two-digit number that has 9 tens, then the tens and hundreds columns change. For example, $92 + 10 = 102$.
2 Yes, Rasmir is correct because 100 less than 201 is 101 and 10 more than 91 is 101.
3 It will become a four-digit number, for example $936 + 100$ equals 1,036.
4 This is only true when the three-digit number is made up of one hundred and no tens, for example, $102 - 10 = 92$.

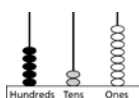
Place value in three-digit numbers Pages 10–11

Ruby

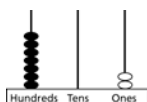
- 1 **a** 80 or 8 tens **b** 10 or 1 ten
- 2 **a** 8 or 8 ones **b** 9 or 9 ones
- 3 **a** 57 **b** 36 **c** 74 **d** 90
- 4 **a** 2 **b** 70 **c** 30 + 2
- 5 **a** 24 **b** 41 **c** 40

Pearl

- 1 **a** 532 **b** 344 **c** 214 **d** 107
- 2 **a**



b



- 3 **a** 8 hundreds, 2 tens, 0 ones **b** 4 hundreds, 5 tens, 6 ones
- 4 **a** 626 **b** 901 **c** 189 **d** 719

Diamond

- 1 742, 247
- 2 Yes, Bev is correct. 752 is larger than 52 because 752 has 7 hundreds and 52 has no hundreds.
- 3 Place value counters to be used to show the numbers 450 to 459 inclusive.

Read and write numbers to 1,000 Page 12

Ruby

- 1 **a** 26 **b** 48 **c** 16
2 **a** ninety-nine **b** forty-nine **c** fourteen

Pearl

- 1 424, 605, 160
2 nine hundred and nine, 909
3 three hundred and twenty-one, 321
4 one hundred and six, 106
5 **a** seven hundred and sixty-eight **b** three hundred and two
 c one hundred and ten

Diamond

- 1 **a** 941, nine hundred and forty-one **b** 149, one hundred and forty-nine
2 No, 340 has 3 hundreds, 4 tens and 0 ones whereas 314 has 3 hundreds, 1 ten and 4 ones.
3 Sometimes true, because 310 is written as three hundred and ten and 300 is written as three hundred.

Comparing and ordering numbers to 1,000 Page 13

Ruby

- 1 **a** > **b** < **c** >
- 2 **a** 99, 95, 93, 59, 35 **b** 54, 52, 48, 47, 45
- 3 **a** 16, 51, 56, 61, 65 **b** 10, 12, 20, 21, 22

Pearl

- 1 **a** 595, 559, 550, 515, 505 **b** 792, 729, 727, 712, 702
- c** 191, 190, 119, 109, 99
- 2 **a** One possible answer: $352 > 253$ **b** One possible answer: $691 < 916$
- c** One possible answer: $186 < 861$

Diamond

- 1 Possible answers: 61, 155, 200, 201, 205, 389, 413
- 2 384, 483 or 438
- 3 Yes, all three digit numbers (except 999) will be less than 999. For example, 100 is less than 999, 575 is less than 999.

Addition Page 14

Ruby

- 1 **a** 14 **b** 64 **c** 85 **d** 79
- 2 **a** > **b** <
- 3 61 children

Pearl

- 1 **a** 476 **b** 399 **c** 835
- 2 **a** 755 **b** 1,209 **c** 1,446
- 3 **a** 1,344 **b** 1,119

Diamond

- 1 Not always true because $999 + 999 = 1,998$, which is a 4-digit number answer.
- 2 Not always true when there is 0 ones in the other 3-digit number that is being added. For example, there is no carrying of a ten in this calculation: $129 + 230 = 359$.

Subtraction Page 15

Ruby

- 1 **a** 25 **b** 46 **c** 28 **d** 40
- 2 **a** > **b** < **c** <
- 3 36 people
- 4 17 biscuits
- 5 13 crayons

Pearl

- 1 **a** 378 **b** 724 **c** 281
- 2 **a** 623 **b** 355
- 3

$$\begin{array}{r}
 600 \quad \overset{60}{\cancel{70}} \quad 12 \\
 - 100 \quad 40 \quad 3 \\
 \hline
 500 \quad 20 \quad 9
 \end{array}$$

Diamond

- 1 Possible examples: 777 – 666, 444 – 333, 222 – 111
- 2 Missing digits 6 and 2. $634 - 252 = 382$

Addition and subtraction problems Page 16

Ruby

- 1 **a** 26 **b** 62 **c** 15
 d 39 **e** 99
- 2 64 roses
- 3 32 pages
- 4 £43

Pearl

- 1 **a** 148 **b** 419 **c** 323
- 2 £339
- 3 336 words
- 4 458 g

Diamond

- 1 193
- 2

356	801	178
367	445	623
712	89	534

Recognising fractions Pages 21–22

Ruby

1 $\frac{3}{4}$

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

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

4 $\frac{1}{4}$

5 $\frac{4}{4}$ or 1

6 $\frac{1}{2}$

7 $\frac{1}{3}$

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

Pearl

1 a $\frac{3}{4}$ b $\frac{4}{9}$

c $\frac{2}{12}$ or $\frac{1}{6}$ d $\frac{1}{8}$

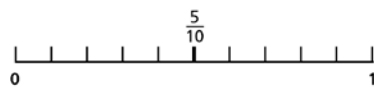
2 a



b



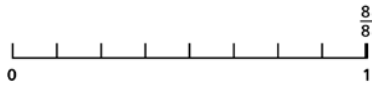
c



d



e



Diamond

1 Nishi is incorrect as there are 5 tiles and only 2 of the 5 tiles are circled, so $\frac{2}{5}$ are circled.

2 $\frac{2}{15}$

3 $\frac{17}{20}$

4 $\frac{5}{12}$

Tenths Pages 23–24

Ruby

- 1 a $\frac{4}{10}$ b $\frac{9}{10}$ c $\frac{4}{10}$
 d $\frac{2}{10}$ e $\frac{7}{10}$
- 2 a $\frac{6}{10}$ b $\frac{4}{10}$ c $\frac{9}{10}$ d $\frac{7}{10}$

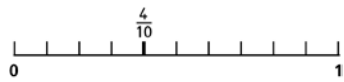
Pearl

- 1 a $\frac{6}{10}$ b $\frac{5}{10}$

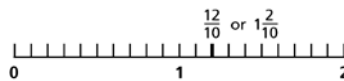
2 a



b



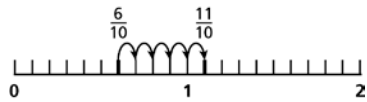
c



- 3 a 3 b 2.5 c 0.6
 d 0.5 e 0.1

Diamond

1 Yes.



2 Yes, the next hop on the number line will be $1\frac{10}{10}$, which is the same as 2.

3 Yes, 50p is the same as 5 equal 10p parts, and 20p is the same as 2 equal 10p parts.

4 $\frac{16}{10}$ m or $1\frac{6}{10}$ m

5 Yes, $50 \div 10 = 5$ and $5 \div 10 = 0.5$

Finding a fraction of a number Pages 25–26

Ruby

- 1 **a** 5 marbles **b** 3 marbles **c** 8 marbles
 d 2 marbles **e** 5 marbles
- 2 **a** 5 parts of the diagram shaded **b** 4 parts of the diagram shaded
 c 4 parts of the diagram shaded **d** 3 parts of the diagram shaded
 e 3 parts of the diagram shaded

Pearl

- 1 4 sectors of the circle shaded.
- 2 12 smiley faces are circled.
- 3 4 stars are circled.
- 4 100 g of flour.
- 5 9 cm
- 6 **a** Either, as both amounts are equal to £10 **b** $\frac{3}{5}$ of £25, because it is £9 more than $\frac{2}{6}$ of £18
 c $\frac{2}{5}$ of £50, because it is £8 more than $\frac{3}{10}$ of £40 **d** $\frac{3}{4}$ of £16, because it is £6 more than $\frac{2}{7}$ of £21
 e $\frac{2}{8}$ of £64, because it is £4 more than $\frac{3}{10}$ of £40

Diamond

- 1 $\frac{1}{6}$ of 30 = 5 or $\frac{1}{5}$ of 30 = 6
- 2 19 marbles are orange.
- 3 Yes, $\frac{1}{3}$ of 24 chocolates is 8 chocolates, which is more than $\frac{1}{4}$ of 24 chocolates, which equals 6 chocolates.
- 4 Jen is correct because $\frac{1}{3}$ of 24 = 8 sheep, $\frac{1}{4}$ of 24 = 6 goats, $\frac{1}{4}$ of 24 = 12 cows. This gives a total of 26 animals, but there are only 24 animals on Farmer Jones's farm!

Equivalent fractions Pages 27–28

Ruby

- 1 a False b False c True d False
e False
- 2 $\frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}, \frac{6}{12}, \frac{8}{16}$
- 3 $\frac{2}{8}, \frac{3}{12}, \frac{4}{16}$
- 4 a $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$ b $\frac{1}{2} = \frac{3}{6} = \frac{6}{12}$

Pearl

- 1 Diagram d
- 2 Diagram c
- 3 a $\frac{1}{5} = \frac{2}{10}$ b $\frac{1}{6} = \frac{2}{12}$ c $\frac{5}{10} = \frac{1}{2}$ or $\frac{2}{4}$ or $\frac{4}{8}$ or $\frac{8}{16}$
d $\frac{2}{8} = \frac{4}{16}$ or $\frac{1}{4}$ or $\frac{3}{12}$ e $\frac{3}{6} = \frac{6}{12}$ or $\frac{1}{2}$ or $\frac{2}{4}$ or $\frac{4}{8}$ or $\frac{5}{10}$ or $\frac{8}{16}$
f $\frac{1}{3} = \frac{2}{6}$ or $\frac{4}{12}$

Diamond

- 1 No, because Sarah has eaten $\frac{2}{6}$ of her chocolate bar, which is not the same amount as Jen, who has eaten half ($\frac{4}{8}$) of her chocolate bar.
- 2 This is sometimes true, because $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$ and in each case you can double the numerator and denominator to find the equivalent fraction. However, you can multiply the numerator and denominator by any number to give an equivalent fraction, for example, $\frac{1}{4} = \frac{3}{12}$.
- 3 Yes, six tenths is not the same as one third, as can be shown using the fraction bar diagram:



Comparing and ordering fractions Pages 29–30

Ruby

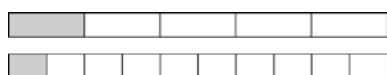
- 1 a $\frac{4}{5}$ b $\frac{4}{6}$ c $\frac{3}{3}$ d $\frac{6}{8}$
- 2 a $\frac{8}{9}, \frac{6}{9}, \frac{1}{9}$ b $\frac{3}{4}, \frac{2}{4}, \frac{1}{4}$ c $\frac{5}{6}, \frac{3}{6}, \frac{1}{6}$ d $\frac{5}{8}, \frac{4}{8}, \frac{1}{8}$
- e $\frac{5}{10}, \frac{4}{10}, \frac{2}{10}$

Pearl

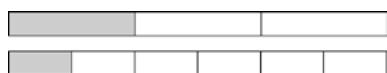
- 1 a $\frac{2}{8}$ b $\frac{2}{10}$
- 2 a $\frac{5}{6}$ b $\frac{4}{4}$
- 3 a $\frac{5}{5}, \frac{3}{5}, \frac{2}{5}, \frac{1}{5}$ b $\frac{8}{8}, \frac{6}{8}, \frac{4}{8}, \frac{3}{8}$ c $\frac{9}{10}, \frac{7}{10}, \frac{4}{10}, \frac{2}{10}$
- 4 a $\frac{1}{3}$ b $\frac{1}{5}$ c $\frac{1}{2}$ d $\frac{1}{3}$

Diamond

- 1 No, $\frac{1}{5}$ is larger than $\frac{1}{10}$, as can be shown using the fraction bar diagram:



- 2 Yes, $\frac{1}{3}$ is larger than $\frac{1}{6}$, as can be shown using the fraction bar diagram:



- 3 Yes, this is always true.

- 4 a True b False c False d False

Adding fractions Pages 31–32

Ruby

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

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

3 $\frac{3}{5} + \frac{1}{5} = \frac{4}{5}$

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

5 $\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$

6 $\frac{1}{7} + \frac{2}{7} = \frac{3}{7}$

7 $\frac{5}{9} + \frac{2}{9} = \frac{7}{9}$

8 $\frac{2}{10} + \frac{8}{10} = \frac{10}{10}$

Pearl

1 $\frac{4}{5}$

2 $\frac{9}{10}$

3 $\frac{5}{8}$

4 $\frac{5}{6}$

5 $\frac{6}{7}$

6 $\frac{2}{3}$

7 $\frac{4}{4}$ or 1

8 $\frac{6}{12}$ or $\frac{1}{2}$

9 $\frac{2}{4}$ or $\frac{1}{2}$

10 $\frac{2}{3}$

11 $\frac{4}{6}$

12 $\frac{3}{4}$

13 $\frac{5}{8}$

Diamond

1 a $\frac{7}{10}$ b $\frac{3}{10}$

2 No, because $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$. Ben has only added $\frac{1}{6}$ to $\frac{3}{6}$ rather than count on two sixths from $\frac{3}{6}$.

3 a True

b False because $\frac{1}{6} + \frac{4}{6} = \frac{5}{6}$ which less than one whole. One whole is made up of six equal parts.

c True d True

4 $\frac{3}{4}$

Subtracting fractions Pages 33–34

Ruby

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

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

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

$$4 \quad \frac{4}{6} - \frac{2}{6} = \frac{2}{6}$$

$$5 \quad \frac{4}{8} - \frac{2}{8} = \frac{2}{8}$$

$$6 \quad \frac{6}{7} - \frac{2}{7} = \frac{4}{7}$$

Pearl

$$1 \quad \text{a} \quad \frac{1}{5} \qquad \text{b} \quad \frac{4}{10} \qquad \text{c} \quad \frac{3}{8} \qquad \text{d} \quad \frac{4}{6}$$

$$\text{e} \quad \frac{2}{7}$$

$$2 \quad \text{a} \quad \text{False} \qquad \text{b} \quad \text{True} \qquad \text{c} \quad \text{True}$$

$$3 \quad \text{a} \quad \frac{8}{10} - \frac{4}{10} = \frac{4}{10} \qquad \text{b} \quad \frac{9}{10} - \frac{8}{10} = \frac{1}{10}$$

Diamond

$$1 \quad \frac{1}{4} \text{ or } \frac{2}{8}$$

$$2 \quad \text{Yes, Ben has connected back to } \frac{2}{6} \text{ from } \frac{4}{6}.$$

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

$$4 \quad \text{Possible answers: } \frac{9}{10} - \frac{8}{10} = \frac{1}{10} \text{ or } \frac{2}{10} - \frac{1}{10} = \frac{1}{10} \text{ or } \frac{6}{10} - \frac{5}{10} = \frac{1}{10}$$

Measuring length Pages 37–38

Ruby

- 1 2 centimetres
- 2 27 metres
- 3 30 mm
- 4 35 centimetres
- 5 30 centimetres
- 6 **a** 5 cm **b** 8 cm
- 7 **a** Line drawn accurately to show 12 cm. **b** Line drawn accurately to show 9.7 cm.
c Line drawn accurately to show 15 cm.

Pearl

- 1 **a** 9 cm **b** 15 cm **c** 9 cm 3 mm **d** 13 cm 7 mm
e 12 cm 5 mm
- 2 **a** Line drawn accurately to show 6.5 cm. **b** Line drawn accurately to show 7.6 cm .
c Line drawn accurately to show 8.8 cm. **d** Line drawn accurately to show 9.5 cm.
e Line drawn accurately to show 3.25 cm.

Diamond

- 1 No, $4 \times 30 \text{ cm} = 120 \text{ cm}$, which is greater than 1 m.
- 2 **a** 5.5 cm *or* 5 cm 5 mm **b** 19.5 cm *or* 19 cm 5 mm
- 3 10 cm line accurately drawn.
- 4 Dev has not started measuring from 0 on the ruler.

Comparing and ordering mass Page 39

Ruby

- 1**
- | | | | |
|----------|----------------------------|----------|------------------------------|
| a | 105 g, 145 g, 405 g, 540 g | b | 187 g, 787 g, 807 g, 2,780 g |
| c | 365 g, 563 g, 605 g, 653 g | d | 256 g, 526 g, 625 g, 652 g |
| e | 789 g, 879 g, 897 g, 907 g | | |
- 2**
- | | | | | | |
|----------|-------------------|----------|-----------|----------|------------------|
| a | Angler fish 50 kg | b | Eel 18 kg | c | Jellyfish 110 kg |
|----------|-------------------|----------|-----------|----------|------------------|

Pearl

- 1** 1 kg
2 1.2 kg
3 1,100 g
4 2.1 kg

Diamond

- 1** No, half of the dog's weight is 5.15 kg. The cat weighs 6.8 kg, which is heavier than 5.15 kg.
- 2** No, Jez is incorrect, because the measurements are given using kilograms and grams. He needs to convert all the measurements to one unit and then compare using place value. The correct order is 45 g, 51 g, 94 g, 37 kg (=3,700 g), 72 g (= 7,200g).

Measuring mass Pages 40–41

Ruby

- 1 1 kilogram
- 2 42 grams
- 3 43 kilograms
- 4 2 grams
- 5 90 grams
- 6 **a** 600 g **b** 200 g **c** 700 g **d** 300 g
e 400 g

Pearl

- 1 5 kg
- 2 700 g
- 3 300 g
- 4 9 kg
- 5 50 g
- 6 175 g
- 7 625 g
- 8 1.5 kg

Diamond

- 1 150 g
- 2 Yes, the scale shows 1,250 g.
- 2 75 g

Comparing and ordering capacity Page 42

Ruby

- 1 **a** 475 ml **b** 675 ml **c** 240 ml **d** 455 ml
 e 965 ml
- 2 2 litres
- 3 3,000 millilitres
- 4 8 litres
- 5 1,500 millilitres

Pearl

- 1 **a** 9,000 ml > 90 ml *and* 90 ml < 9 l **b** 1 l = 1,000 ml *and* 1,000 ml < 10 l
 c 7,000 ml = 7 l *and* 7 l > 70 ml
- 2 <

Diamond

- 1 No, 2 large bottles of lemonade is more than double the amount of a pack of four cans. $4 \times 300 \text{ ml} = 1.2 \text{ l}$, but $1.5 \text{ litre bottle} \times 2 = 3 \text{ litres}$.
- 2 200 ml more, because flask holds 1.4 l and the teapot holds 1.2 l.

Measuring capacity Pages 43–44**Ruby**

- 1** **a** 2 litres **b** 5 litres **c** 4 ml
2 **a** 3 l **b** 700 ml **c** 500 ml

Pearl

- 1** **a** 70 ml **b** 1,000 ml **c** 2 l **d** 900 ml
2 **a** 1.4 l or 1,400 ml **b** 450 ml **c** 50 ml **d** 1.1 l or 1,100 ml

Diamond

- 1** 325 ml
2 No, he only has a litre (1,000 ml) of water in his jug and he wants to pour 1,400 ml of water into seven cups.
3 300 ml of water
4 3 l of water or 3,000 ml of water

Word problems – mixed measures Pages 45–46**Ruby**

- 1 480 ml
- 2 670 cm
- 3 7:55 a.m.
- 4 80 g
- 5 12
- 6 1,000 ml
- 7 500 ml
- 8 2.5 m
- 9 40 cm
- 10 40 ml

Pearl

- 1 415 m
- 2 36 m
- 3 8 m
- 4 25 kg
- 5 23 mm
- 6 7.5 l
- 7 4 boxes
- 8 25
- 9 180 kg
- 10 240 g

Diamond

- 1 3.5 m
- 2 No, Ian is incorrect because $1.5 \text{ litres} \times 3 = 4.5 \text{ litres}$ and $6 \text{ cans} \times 250 \text{ ml} = 1.5 \text{ l}$.
- 3 750 ml of water
- 4 **a** True **b** False **c** True **d** True
- 5 No, Dan is incorrect because to convert m to cm, you need to multiply by 100 rather than 1,000.

Reading clocks Pages 47–48

Ruby

- 1 a 8 o'clock b quarter to six c 2 o'clock
 d quarter past four e twenty-five past nine

2 a



b



c



d

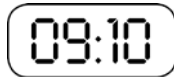


e

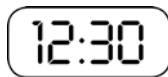


3

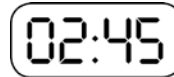
a



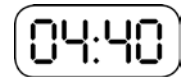
b



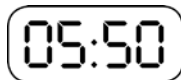
c



d



e



Pearl

- 1 a 7 minutes past five
 b 22 minutes past eleven
 c 8 minutes to three

- d quarter past four
- e twenty-five to three

2 a



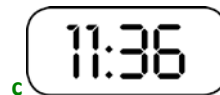
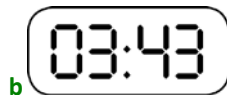
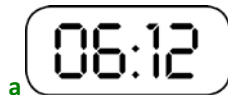
b



c



3



Diamond

- 1 No, the two analogue clocks show quarter to four, but the digital clock shows quarter to five.
- 2 6 hours and 20 minutes ago.
- 3 Yes, 14:05 p.m. is the same as 2:05 p.m. The interval between 1 p.m. and 2:05 p.m. is 1 hour and 5 minutes.

Time facts Page 49

Ruby

- 1 7 days
- 2 365 days
- 3 12 months
- 4 14 days
- 5 1,440 minutes
- 6 24 months
- 7 60 seconds
- 8 30 months

Pearl

- | | | | | | | | | |
|---|---|-----------|---|------|---|----------|---|----------|
| 1 | a | 12 | b | 365 | c | 366 | d | 31 |
| | e | 60 | | | | | | |
| 2 | a | April | b | June | c | February | d | November |
| | e | September | | | | | | |

Diamond

- 1 Yes, because 60 seconds is the same as 1 minute.
- 2 No, a leap year is every four years and this is when February has 29 days.
- 3 This is never true, because only four months in a calendar year have 30 days: September, November, April, June.
- 4 December

Time intervals Pages 50–51

Ruby

- 1 **a** 35 minutes **b** 30 minutes **c** 1 hour and 10 minutes
- 2 12:15 p.m.
- 3 30 minutes
- 4 1 hour and 30 minutes
- 5 1 hour and 15 minutes
- 6 4 hours and 30 minutes

Pearl

- 1 5 hours and 40 minutes
- 2 16:10
- 3 9 a.m.
- 4 20:15
- 5 13:35
- 6 8:25 a.m.
- 7 11:55 a.m.
- 8 1 o'clock

Diamond

- 1 Dan is incorrect because 19:25 is later than the time he wants to eat. He should put the pizza in the oven by 18:35, so he can eat his dinner for 7 p.m.
- 2 Yes, she will be there at 3:15 p.m., which is 45 minutes before she meets her friend at 4 p.m.
- 3 25 minutes (10 minutes for first arrow and 15 minutes for second arrow).
- 4 Accept any 20 minute time slots between 4 p.m. and 5:15 p.m.

Money problems Page 52

Ruby

- 1 **a** 30p **b** £20 **c** £6
- 2 **a** £2 **b** £4.55 **c** £3 **d** £3.65

Pearl

- 1 **a** £7 **b** £14 **c** £18
- 2 **a** £5 **b** £10.65 **c** £18.44

Diamond

- 1 True
- 2 True
- 3 False. 3 whistles cost £4.05.
- 4 False. 16 stamps cost £2.40.
- 5 False. £20 - £12 = £8.

Perimeter Pages 53–54

Ruby

- 1 14 cm
- 2 22 cm
- 3 20 cm
- 4 20 cm
- 5 24 cm
- 6 30 cm
- 7 22 cm
- 8 28 cm

Pearl

- 1 a 22 cm b 16 cm c 26 cm d 12 cm
e 10 cm
- 2 a 32 cm b 6 cm c 8 cm d 22 cm
e 14 cm

Diamond

- 1 6 cm
- 2 2 cm
- 3 Possible answers: 1 cm × 13 cm, 2 cm × 12 cm, 3 cm × 11 cm, 4 cm × 10 cm, 5 cm × 9 cm, 6 cm × 8 cm, 7 cm × 7 cm
- 4 Possible answers: 1 cm × 19 cm, 2 cm × 18 cm, 3 cm × 17 cm, 4 cm × 16 cm, 5 cm × 15 cm, 6 cm × 14 cm, 7 cm × 13 cm, 8 cm × 12 cm, 9 cm × 11 cm, 10 cm × 10 cm
- 5 No, Dan is incorrect: $12\text{ cm} + 12\text{ cm} + 6\text{ cm} + 6\text{ cm} = 36\text{ cm}$. The shorter side must be 3 cm.

Lines Page 55

Ruby

- | | | | | | | | | |
|---|---|------|---|-------|---|------|---|---|
| 1 | a | 2 | b | 2 | c | 0 | d | 0 |
| 2 | a | True | b | False | c | True | | |

Pearl

- | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1 | a | 2 | b | 2 | c | 1 | d | 4 |
| 2 | a | 4 | b | 2 | c | 1 | d | 2 |

Diamond

- | | | | | |
|---|---|--|---|---|
| 1 | a | Rectangle, parallelogram, square <i>or rhombus</i> | b | Possible answer: rectangle <i>or</i> square |
| | c | Possible answer: regular hexagon | d | Possible answer: circle |

2-D shapes Page 56

Ruby

- a** circle **b** hexagon **c** pentagon
- A square has all four sides of equal length, a rectangle has two longer sides of the same length and two shorter sides of the same length.
- Possible answers: rectangle, square, kite, trapezium, parallelogram, rhombus.

Pearl

- a** five sides **b** curved side and straight side
c six sides **d** eight sides
- Learners to draw regular and irregular pentagons.
- A rectangle and a right-angled triangle.
- The circle, because it is the only shape that does not have four sides or straight sides.

Diamond

- No, this is not possible, because the angles inside a quadrilateral must add up to 360° .
- Yes.
- Yes, it is possible to draw a pentagon with one right angle, but not a regular pentagon.
- Learners to create as many different triangles on 3×3 geoboard.

3-D shapes Pages 57–58

Ruby

- 1 **a** cuboid **b** cylinder **c** square-based pyramid **d** cube
- 2 sphere – no
cylinder – yes
cube – yes
cuboid – no
cone – yes
- 3 **a** cone **b** cuboid **c** square-based pyramid
d sphere **e** triangular-based pyramid or tetrahedron

Pearl

- 1 **a** cube **b** square-based pyramid **c** triangular-based pyramid or tetrahedron
- 2 **a** 3 pairs of faces that are not identical, 8 vertices and 12 edges **b** 1 face
c 5 faces, 6 vertices, 9 edges
- 3 **a** All faces are identical. **b** Only shape with curved sides.
- 4 A cube is made up of six identical square faces, but a cuboid has 3 opposite pairs of identical rectangular faces (1 pair may be square).

Diamond

- 1 Cube
- 2 No, the cross-section of a cylinder is circular, because each end of a cylinder has a circle face.
- 3 A prism has the same cross-section along its length, but a pyramid does not.
- 4 **a** False **b** False **c** False **d** True
e False

Angles Page 59

Ruby

1 1

2 2

3 3

4 a Less than a right angle

b Greater than a right angle

c Greater than a right angle

d Greater than a right angle

e Less than a right angle

f Less than a right angle

Pearl

1 Group A: a, b, c, e, g, h

Group B: d, f, i, j

2 Group A: b, c, g

Group B: a, e, h

Group C: b, c, f, i, j

Diamond

1 Yes, Dev is correct.

2 No, Ben is incorrect. Two of the triangles have no right angles.

Tables Page 60

Ruby

- 1 Saturday
- 2 4th June
- 3 5
- 4 Saturday 25th June

Pearl

- 1 3 minutes
- 2 Codford to Dogpool
- 3 32 minutes
- 4 8:13

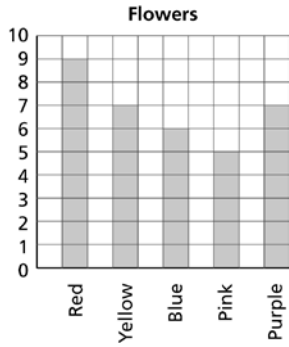
Diamond

- 1 Norway – 80
- 2 Turkey – 9
- 3 Australia – 800
- 4 Scotland – 60
- 5 Holland – 210
- 6 Hong Kong – 20

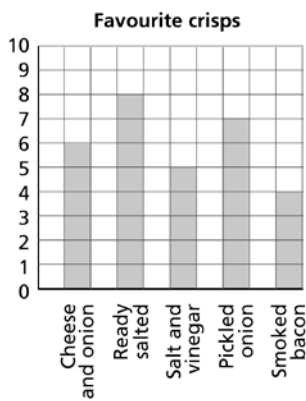
Bar charts Pages 61–62

Ruby

1



2



Pearl

- 1 **a** 8 (green) **b** 4 (red and blue) **c** 4 balls
- 2 **a** 3 **b** 12 **c** 4 **d** 1
- e** 8






Diamond


- 1 False, she recycled 14 cans.
- 2 False, he recycled 11 cans.
- 3 True.
- 4 False, he recycled 6 more cans than Tim.
- 5 False, she recycled 3 more cans than Tim.

Pictograms Pages 63–64

Ruby

1

Milkshake flavour	Amount of milkshakes
Chocolate	
Strawberry	
Vanilla	
Banana	
Coffee	
Toffee	








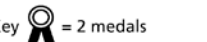

Key  = 5 milkshakes

- 2 a vanilla b coffee c 5 milkshakes d 55 milkshakes

Pearl

- 1 a 8 b 8 c 3 d 5
e 2 f 4

2

Country	Number of medals
Australia	
Scotland	
Ireland	
Switzerland	
Greece	
Finland	
China	
Egypt	
Morocco	
Germany	

Key  = 2 medals

Diamond

- 1 False, 8 children like to do painting.
- 2 False, 6 children like to play table tennis.
- 3 False, 11 children like to do cooking at after school club.
- 4 True.
- 5 True.