Power maths answers for week 3

Day 1:

Lesson 13: Multiplying decimals by 10, 100 and 1,000

→ pages 42–44

1. a) 79
790
7,900

Th	H	T	O	•	Tth	Hth
			7	•	9	
		7	9	•		
	7	9	0	•		
7	9	0	0	•		

b) 21·9
219
2,190

Th	H	T	O	•	Tth	Hth
			2	•	1	9
		2	1	•	9	
	2	1	9	•		
2	1	9	0	•		

c) 84

Th	H	T	O	•	Tth	Hth
			0	•	8	4
		8	4	•		

d) 700

Th	H	T	O	•	Tth	Hth
			0	•	7	
	7	0	0	•		

e) 5

Th	H	T	O	•	Tth	Hth
				•	0	5
			5	•		

f) 1,700

Th	H	T	O	•	Tth	Hth
			1	•	7	
1	7	0	0	•		

2. a) 40
4
0·4
40

b) 170
1,700
170

c) 9·12
0·912
0·00912
0·0912

d) 100
100
10
1,000

3. a) 335 litres b) 20 m

4.

Number	0·1207	0·0036	0·38	0·07691	0·012
× 1,000	120·7	3·6	380	76·91	12
× 100	12·07	0·36	38	7·691	1·2

5. a) In any order:
6·8 × 10 = 68
0·68 × 100 = 68
0·068 × 1,000 = 68

b) Answers will vary; for example:
6·8 × 10 = 0·68 × 100
0·68 × 10 = 0·068 × 100
6·8 × 100 = 0·68 × 1,000

Reflect

- Multiplying by 100 is the same as multiplying by 10 and 10 again.
- Multiplying by 1,000 is the same as multiplying by 10 and 10 and 10 again.

When demonstrating how to use a place value grid to multiply by 100 and 1,000, check that children recognise that the digits stay the same but move 2 places (× 100) and 3 places (× 1,000) to the left with 0s being inserted as place holders in any empty spaces in the place value grid.

Day 2 answers

Lesson 14: Dividing decimals by 10

→ pages 45–47

1. 0·12

2. a) 0·45 c) 4·5
b) 0·045 d) 0·452

3. 0·231 in each section of bar model.
2·31 ÷ 10 = 0·231

4. The mass of one apple is 0·28 kg.

5. a) 60·3 d) 10 g) 0·35
b) 16·03 e) 0·8 h) 87·19
c) 1·631 f) 0·3978 i) 389·5

6. Max has correctly divided 35 by 10 to get the answer of 3·5, but since this is money, he needs to put the answer to 2 decimal places by writing 0 in the hundredths column, i.e. £3·50.

7. a) 100 ml of lemonade costs £0·18.
b) 200 g of cocoa costs £2·40.
Explanations may vary; for example:
1 kg = 1,000 g
So, 100 g of cocoa costs:
£12 ÷ 10 = £1·20
Therefore, 200 g of cocoa costs:
2 × £1·20 = £2·40

8. Toshi uses 0·025 kg of hot chocolate powder in each cup.

Reflect

Answers will vary; children should recognise that the digits stay the same but move 1 place to the right with 0s being inserted as place holders in any empty spaces in the place value grid.

Day 3 answers

Lesson 15: Dividing decimals by 10, 100 and 1,000

→ pages 48–50

1. a) 0·23

H	T	O	•	Tth	Hth	Thth
	2	3	•	0		
		0	•	2	3	

b) 0·145

H	T	O	•	Tth	Hth	Thth
1	4	5	•			
		0	•	1	4	5

c) 0·052

H	T	O	•	Tth	Hth	Thth
		5	•	2		
		0	•	0	5	2

d) 0·013

H	T	O	•	Tth	Hth	Thth
	1	3	•			
		0	•	0	1	3

Reflect

Yes, Reena is correct. Explanations may vary; for example:

0·351 ÷ 10 = 0·0351
3·51 ÷ 100 = 0·0351
35·1 ÷ 1,000 = 0·0351

All three of these calculations are equal.

2. Bella is correct. Explanations may vary, but most likely explanation is to divide each tenth of the grid into 10 equal pieces and to note that the whole grid is now divided into 100 equal pieces.

3. a) True
b) True
c) False, 53 ÷ 100 = 0·53
d) True
e) False, 8·7 ÷ 100 = 0·087
f) False, 9·1 ÷ 1,000 = 0·0091

4. Calculations matched:
0·8 ÷ 100 → 8 ÷ 1,000
0·18 ÷ 100 → 1·8 ÷ 1,000
10·8 ÷ 100 → 108 ÷ 1,000
0·108 ÷ 10 → 1·08 ÷ 100

5. a) 10
100
1,000

b) 1·2
12
120

6. Jamie saved £1·06 more each day.

7. ■ = 0·98
▲ = 0·00098
★ = 0·00061
● = 0·0061

Day 4 answers

Q	A
1	C
2	B
3	B
4	D
5	A
6	B
7	0·18kg
8	B is 18·98 C is 50·48

My journal

WAYS OF WORKING Independent thinking

ANSWERS AND COMMENTARY

Question 1 a): Max could do this as a column subtraction (see example).

Or he could do 12 – 4·35 = 11·99 – 4·34 = 7·65.

- Encourage children to work out the missing number first using the methods they have encountered in this unit.

	T	O	·	Tth	Hth
	~~0~~	~~1~~	·	~~9~~	10
–		4	·	3	5
		7	·	6	5

Question 1 b): Max should be careful to avoid mistakes when setting up the column method. He could also make mistakes when exchanging. Max may ignore the digit of '0' and not do any exchange at all or do the wrong exchange

Question 2 a): All the sums are equal to 27·95.

Question 2 b): The first calculation shows the sum of a whole number and a decimal number. The second calculation is the sum of two decimal numbers with one exchange. The third calculation is that of two numbers with a different number of decimal places.

Power play

WAYS OF WORKING Independent thinking

IN FOCUS Children are presented with a puzzle which requires them to complete a sequence of calculations that to leave them on their target number or 0·002 or 2. They can work independently or in pairs.

ANSWERS AND COMMENTARY Encourage children to double-check the calculations on every row and column and to write all the number sentences.

2	÷ 100	÷ 10	× 100	× 10	÷ 100
÷ 1,000	× 100	× 10	÷ 10	× 100	× 10
× 10	÷ 100	× 10	÷ 10	× 100	÷ 1,000
× 100	÷ 10	× 1,000	× 100	× 10	0·002

2	÷ 100	÷ 10	× 100	× 10	÷ 100
÷ 1,000	× 100	× 10	÷ 10	× 100	× 10
× 10	÷ 100	× 10	÷ 10	× 100	÷ 1,000
× 100	÷ 10	× 1,000	× 100	× 10	2

Mental maths test answers

1) 4,800
2) 0.28
3) 8
4) 13
5) 21, 28
6) 17.5
7) 1,230
8) 0.056
9) 0.8513
10) 6.35
11) 1,281.2
12) 2,390
13) 6,300
14) 132
15) 1,600
16) 11.1
17) 12.06
18) 514
19) 75
20) 344