Multiply by 10, 100 and 1,000

1 Complete the calculations and sentences.

Use place value counters to help you.

Th	H	T	O	Tth	Hth
			● ●	● ● ●	

a) 2.3 × 10 = 23

When the number is multiplied by 10 the counters move 1 place to the left.

b) 2.3 × 100 = 230

When the number is multiplied by 100 the counters move 2 places to the left.

c) 2.3 × 1,000 = 2,300

When the number is multiplied by 1,000 the counters move 3 places to the left.

2 Complete the diagram.

3.06 → × 10 → 30·6 → × 10 → 306

3 **a)** Draw counters on the place value charts to represent each calculation.

4.4 × 1

Th	H	T	O	Tth	Hth
			○ ○ ○ ○	○ ○ ○ ○	

4.4 × 10

Th	H	T	O	Tth	Hth
		←	○ ○ ○ ○	○ ○ ○ ○	

4.4 × 100

Th	H	T	O	Tth	Hth
	←		○ ○ ○ ○	○ ○ ○ ○	

4.4 × 1,000

Th	H	T	O	Tth	Hth
←			○ ○ ○ ○	○ ○ ○ ○	

b) Complete the calculations.

4.4 × 1 = 4·4

4.4 × 10 = 44

4.4 × 100 = 440

4.4 × 1,000 = 4,400

What do you notice?

4 Complete the calculations.

a) 13.44 × 10 = 134·4

b) 41.4 × 100 = 4,140

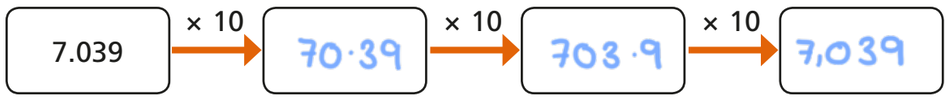
c) 0.415 × 1,000 = 415

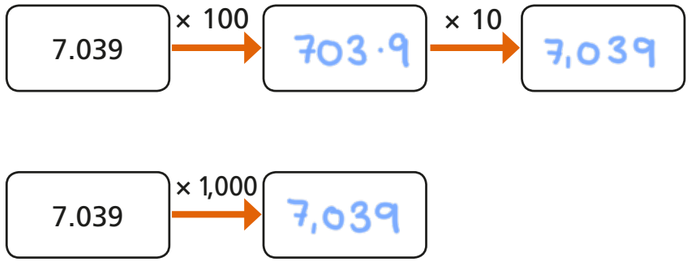
d) 4.4 × 1,000 = 4,400

e) 103 = 1.03 × 100

f) 30.44 = 3·044 × 10

5 Complete the diagrams.





What do you notice? Why does this happen?

They all give the same final answer because 10 x10 x10 = 100 x10 = 1,000

6 Write >, < or = to compare the number sentences.

1.4 × 10 × 10 × 10 = 1.4 × 1,000

1.4 × 10 × 100 = 1.4 × 1,000

1.4 × 10 × 10 < 1.4 × 1,000

1.4 × 10 × 2 < 1.4 × 100

7 Kim is calculating 14.3 × 200

She writes this as her answer.

14.3 × 200 = 28.600

Explain Kim's mistake.

She has multiplied by 2 and added two zeros. She hasn't considered the place value of each digit. 14·3×200 = 2,860

8 Use the cards to complete the calculation.

You can use each card more than once.

× 1	× 10	× 100	× 1,000

E.g. 0.002 [×10] [×100] [×1,000] = 2,000

How many ways is it possible to complete this calculation?

Talk about it with a partner.

Divide by 10, 100 and 1,000

1 Complete the calculations and sentences.

Use place value counters to help you.

Th	H	T	O	Tth	Hth
	●	● ● ● ●			

a) 140 ÷ 10 = 14

When the number is divided by 10 the counters move 1 place to the right.

b) 140 ÷ 100 = 1·4

When the number is divided by 100 the counters move 2 places to the right.

c) 140 ÷ 1,000 = 0·14

When the number is divided by 1,000 the counters move 3 places to the right.

2 Complete the diagram.

43 → ÷ 10 → 4·3 → ÷ 10 → 0·43

3 **a)** Draw counters to represent the calculations.

123 ÷ 1

H	T	O	Tth	Hth	Thth
●	● ●	● ● ●			

123 ÷ 10

H	T	O	Tth	Hth	Thth
●	● ●	● ● ●			

123 ÷ 100

H	T	O	Tth	Hth	Thth
●	● ●	● ● ●			

123 ÷ 1,000

H	T	O	Tth	Hth	Thth
●	● ●	● ● ●			

b) Complete the calculations.

123 ÷ 1 = 123

123 ÷ 10 = 12.3

123 ÷ 100 = 1.23

123 ÷ 1,000 = 0.123

What do you notice?

4 Complete the calculations.

a) 16 ÷ 10 = 1·6

b) 43.4 ÷ 100 = 0·434

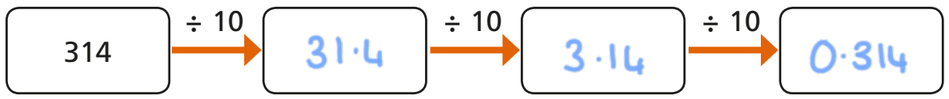
c) 614 ÷ 1,000 = 0.614

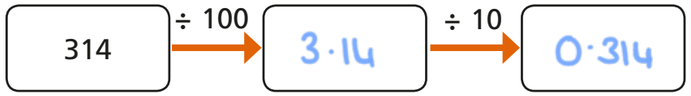
d) 332 ÷ 1,000 = 0.332

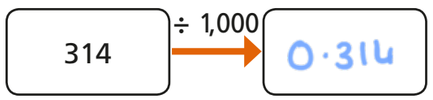
e) 2.4 ÷ 200 = 0.012

f) 5.09 = 101.8 ÷ 20

5 Complete the diagrams.







What do you notice? Why does this happen?

They all give the same final answer because 10 x 10 x 10 = 100 x 10 = 1,000

6 Write >, < or = to compare the number sentences.

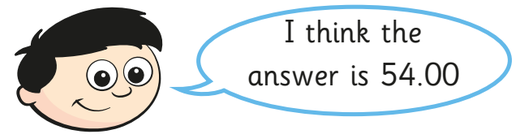
5,400 ÷ 10 ÷ 10 ÷ 10 (=) 5,400 ÷ 1,000

60 ÷ 100 ÷ 10 (<) 600 ÷ 100

5.7 ÷ 10 (=) 57 ÷ 100

5,601 ÷ 1,000 (>) 5.601 ÷ 10

7 Dexter is solving the calculation 5,400 ÷ 100

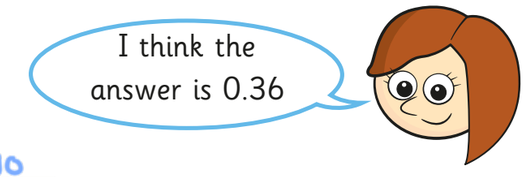


Is Dexter correct? Yes

Explain your reasoning.

54·00 is the same as 54

8 Rosie is solving the calculation 3,600 ÷ 200



Is Rosie correct? NO

Explain your reasoning.

She has divide by 100 twice (10,000) she should have divided by 100 then 2 to give an answer of 18