Formal methods: divide decimals

1

14
2.8	2.8	2.8	2.8	2.8

1.4
0.28	0.28	0.28	0.28	0.28
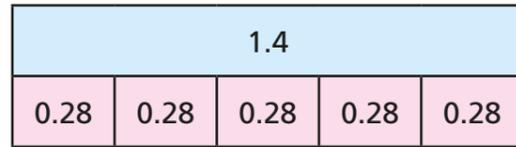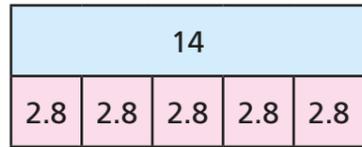
a) Write the division represented by each bar model.

$14 \div 5 = 2 \cdot 8$ $1 \cdot 4 \div 5 = 0 \cdot 28$

b) What is the same and what is different about the bar models and the divisions that they represent?

Discuss with a partner.

**2** Complete the divisions.

a)

```
    1 4 6
3 ) 4 ¹3 ¹8
```

```
    1 4·6
3 ) 4 ¹3·¹8
```

b)

```
    0 7 5
5 ) 3 ³7 ²5
```

```
    0·7 5
5 ) 3·³7 ²5
```

c)

```
    0 4 4 1
4 ) 1 ¹7 ¹6 4
```

```
    0 4·4 1
4 ) 1 ¹7·¹6 4
```
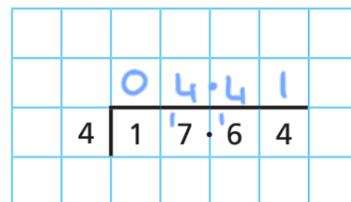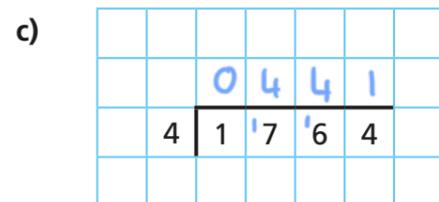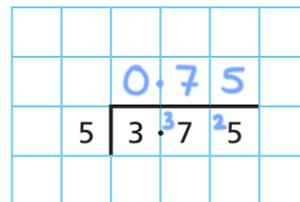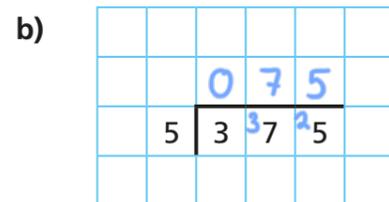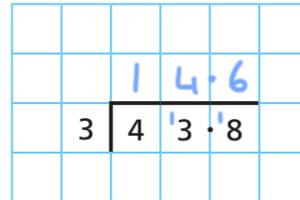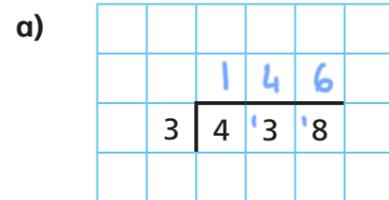
3 Work out the missing digits.

a)

```
      0 3·5
7 ) 2 ²4·³5
```

c)

```
      2 6·8 9
3 ) 8 ²0·²6 ²7
```

b)

```
      0 2 5·4
6 ) 1 ¹5 ³2·²4
```

d)

```
      0·9 2 3
6 ) 5·⁵5 ¹3 ¹8
```
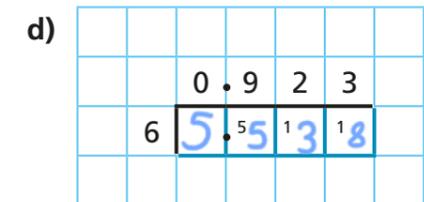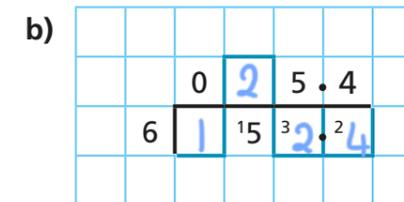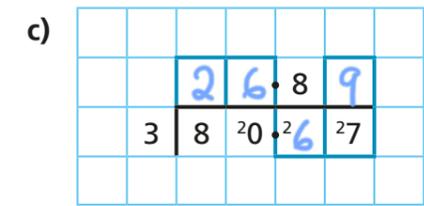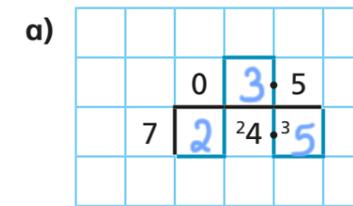
4 Explain the mistake that has been made in this short division.

```
      1   2   0 • 6
8 ) 9   ¹6 • 4   ⁴8
```
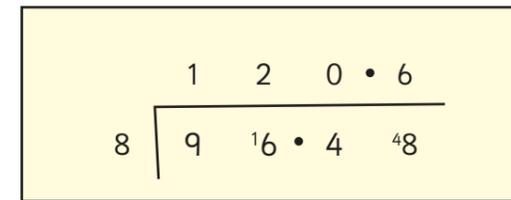
The decimal point is aligned.

5 Work out the divisions.

a) $0.738 \div 6 =$ $0 \cdot 123$

b) $7.08 \div 3 =$ $2 \cdot 36$

c) $7.14 \div 6 =$ `1·19`

e) $813.6 \div 9 =$ `90.4`

d) $8.23 \div 5 =$ `1·646`

f) $109.5 \div 6 =$ `18·25`
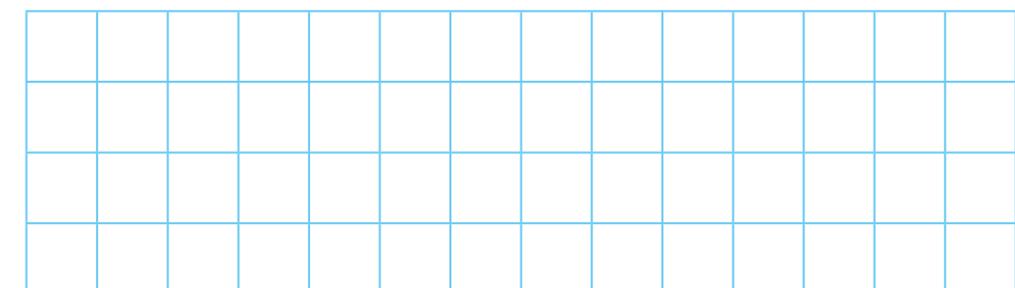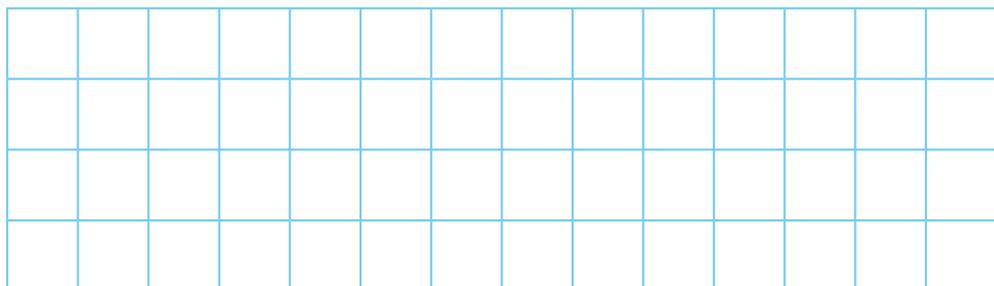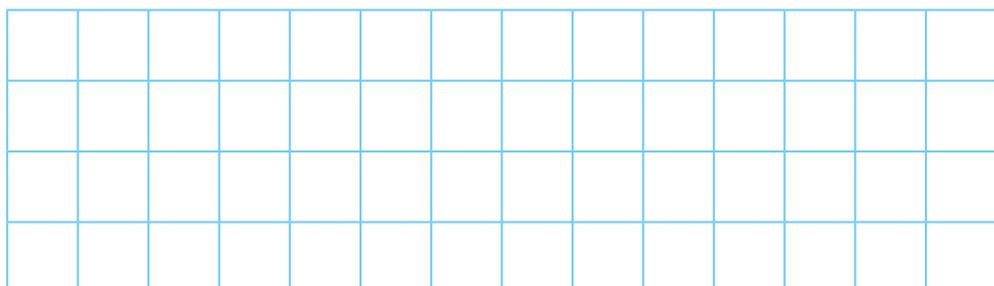
6 Work out the divisions.

a) $228.8 \div 16 =$ `14·3`

c) $640.92 \div 42 =$ `15·26`

b) $130.15 \div 25 =$ `5·206`

7 Solve the equations.

a) $4f = 13.2$

b) $5v = 21.24$

$f =$ `3·3`

$v =$ `4·248`

8 Find $\frac{3}{8}$ of 9.2 kg.

`3·45` kg

9 A shape is made up of a regular octagon and a regular pentagon.

The octagon has a perimeter of 29.76 m.

Find the perimeter of the whole shape.
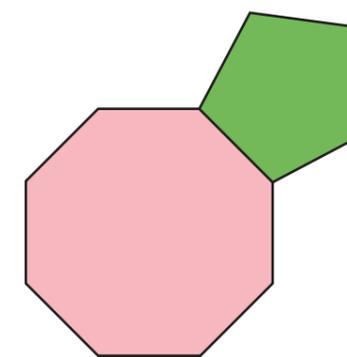
perimeter = `40·92` m

10 32 children are going on a school trip to a theme park.

The total cost of the tickets is £360

The coach hire costs £175

How much should each child pay to go on the trip?

Show your full method.

£ `16·72` per child