Dividing decimals using mental methods and the formal written method

- Use mental methods to divide a decimal by a 1-digit number
- Use the formal written method of short division to divide a decimal by a 1-digit number

Challenge 1

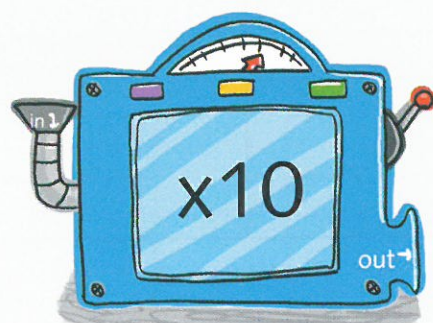**1** For each machine, work out the output number for each input number.

a
0·6
0·15
4·07
5·4
0·09

×10

b
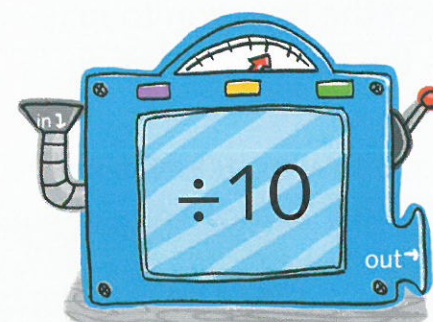0·04
6·3
1·08
0·17
4·92

×100

c
9
3·8
7·7
62·4
0·2

÷10

d
59
8
72
4
12

÷100
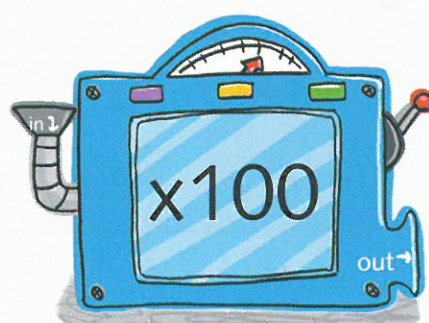
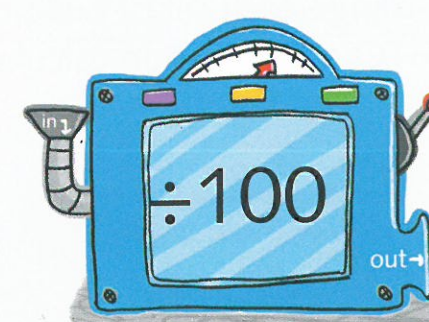**2** Malik answered each of these calculations incorrectly. Copy each calculation and write the correct answer.

a $0·3 \times 10 = 30$ ✗

b $5·08 \times 10 = 58$ ✗

c $34·8 \times 100 = 348$ ✗

d $18 \div 100 = 1·8$ ✗

e $43·7 \div 10 = 0·437$ ✗

f $0·08 \times 10 = 8$ ✗

g $4·1 \div 10 = 41$ ✗

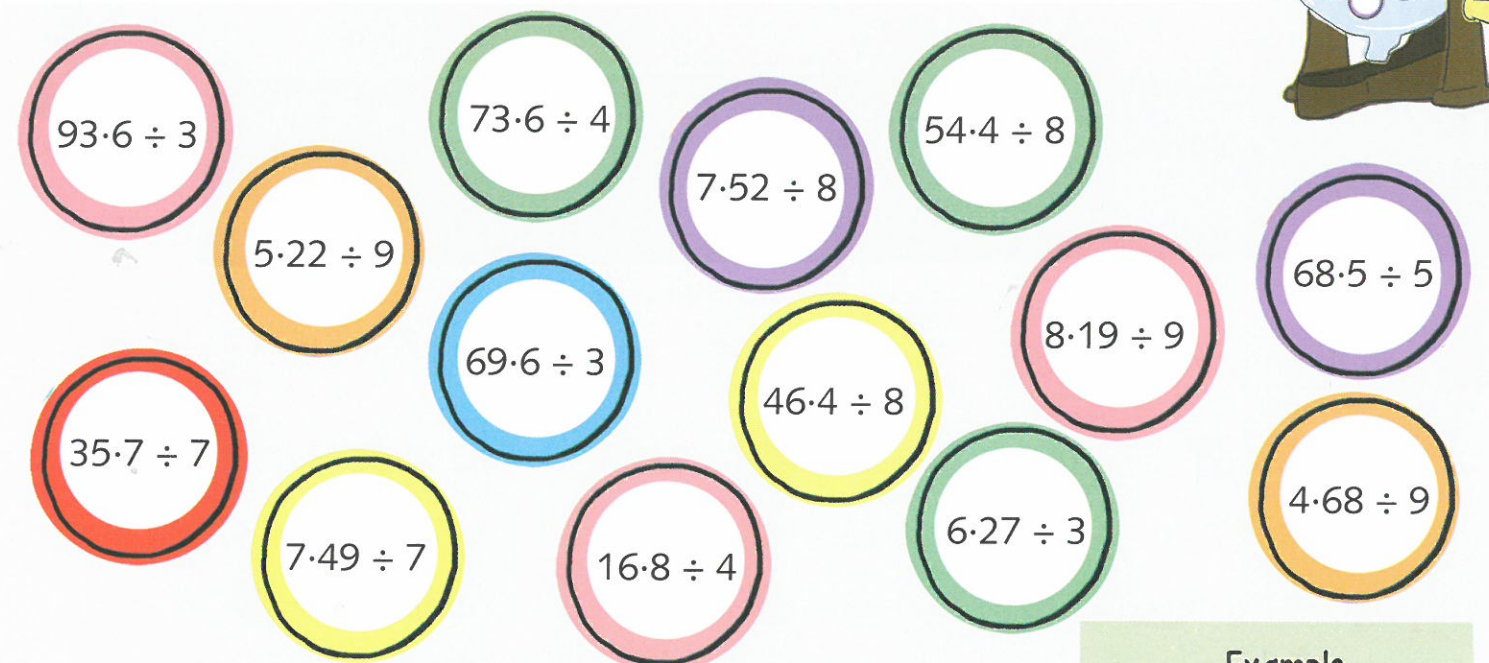**h** $8·05 \times 100 = 85$ ✗

i $6 \div 100 = 0·6$ ✗

j $13 \div 10 = 0·13$ ✗

k $34 \div 100 = 0·034$ ✗

l $0·01 \times 100 = 0·1$ ✗

Challenge 2

1 Sort the calculations into two groups: those you can work out using mental methods and those where you need to use a written method.

$93·6 \div 3$

$73·6 \div 4$

$54·4 \div 8$

$7·52 \div 8$

$5·22 \div 9$

$68·5 \div 5$

$69·6 \div 3$

$8·19 \div 9$

$46·4 \div 8$

$35·7 \div 7$

$7·49 \div 7$

$16·8 \div 4$

$6·27 \div 3$

$4·68 \div 9$

2 Work out the answer to each calculation in Question 1. For the calculations that need a written method, use the formal written method of short division. Remember to estimate the answer first.

Example

$27·6 \div 6 \rightarrow 30 \div 6 = 5$

$$\begin{array}{r} \text{T O} \cdot \text{t h} \\ 4 \cdot 6 \\ 6\overline{\smash{)}2\ 7 \cdot {}^36} \end{array}$$

Challenge 3

Play this game with a partner. Take turns to:

- Choose a number from below and write it down (you can only choose each number once).
- Roll the dice.
- Divide your chosen number by the number on the dice. Choose the most appropriate method to calculate the answer: mental or written.
- Write the calculation and the answer to 2 decimal places. Show any working out.

The person with the smallest answer scores one point. The first person to score five points is the winner.

You will need:
- 0–9 or 1–10 dice

35·6   66·6   62·4   94·5   24·8   49·2   73·5   16·8   53·4   13·4