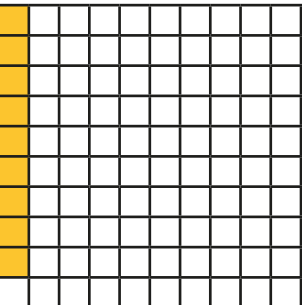
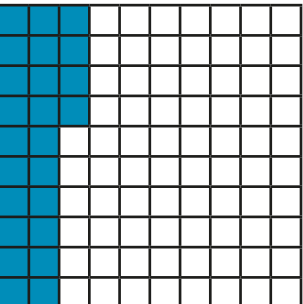


Understand percentages

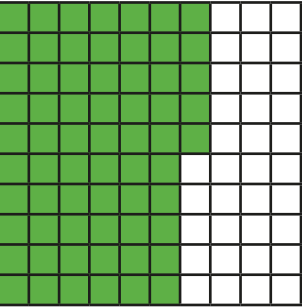
1 Complete the sentence for each diagram.

a)  There are parts out of a hundred shaded.

This is %.

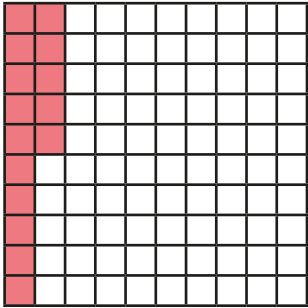
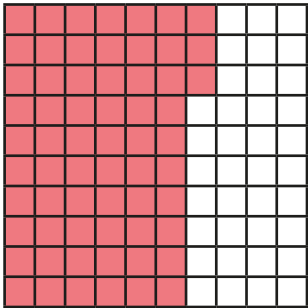
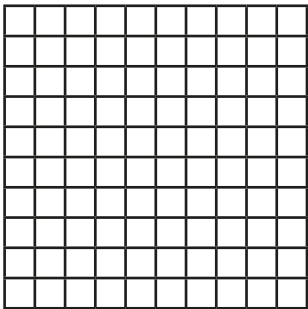
b)  There are parts out of a hundred shaded.

This is %.

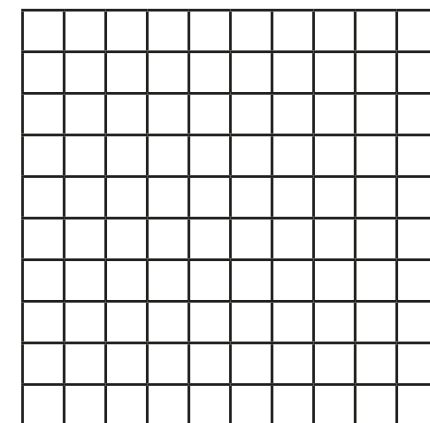
c)  There are parts out of a hundred shaded.

This is %.

2 Complete the table.

Hundred square	Percentage
	
	
	82%

3 Shade 15% of the hundred square red.
Shade 32% of the hundred square blue.



What percentage of the hundred square is **not** shaded? %

- 4 a) Is 1% of this bar model shaded? _____



Explain your reasoning.

- b) What percentage of each bar model is shaded?



%



%

- 5 Passengers are boarding a plane.

The plane has 100 seats.

- a) 10% of the seats are already full.

How many passengers are already on the plane?

- b) 15% of the seats have not been booked.

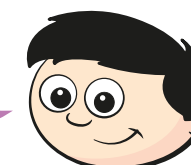
How many seats have been booked?

- c) How many passengers still need to board the plane?

- 6 Dexter has £1 to spend.
He buys some stickers.



I got 35p change.



What percentage of his money did Dexter spend?

%

- 7 Aisha and Brett have been selling tickets for the school play.

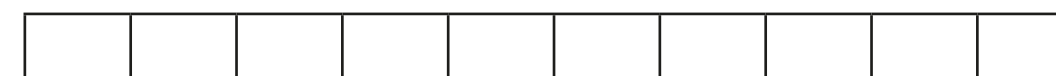
There are 100 seats available.

- On Monday they sold 34% of the tickets.
- On Tuesday they sold 42 tickets.
- By the end of Wednesday, 95% of the tickets had been sold.

How many tickets did they sell on Wednesday?

On Wednesday they sold tickets.

- 8 Shade 85% of this bar model.

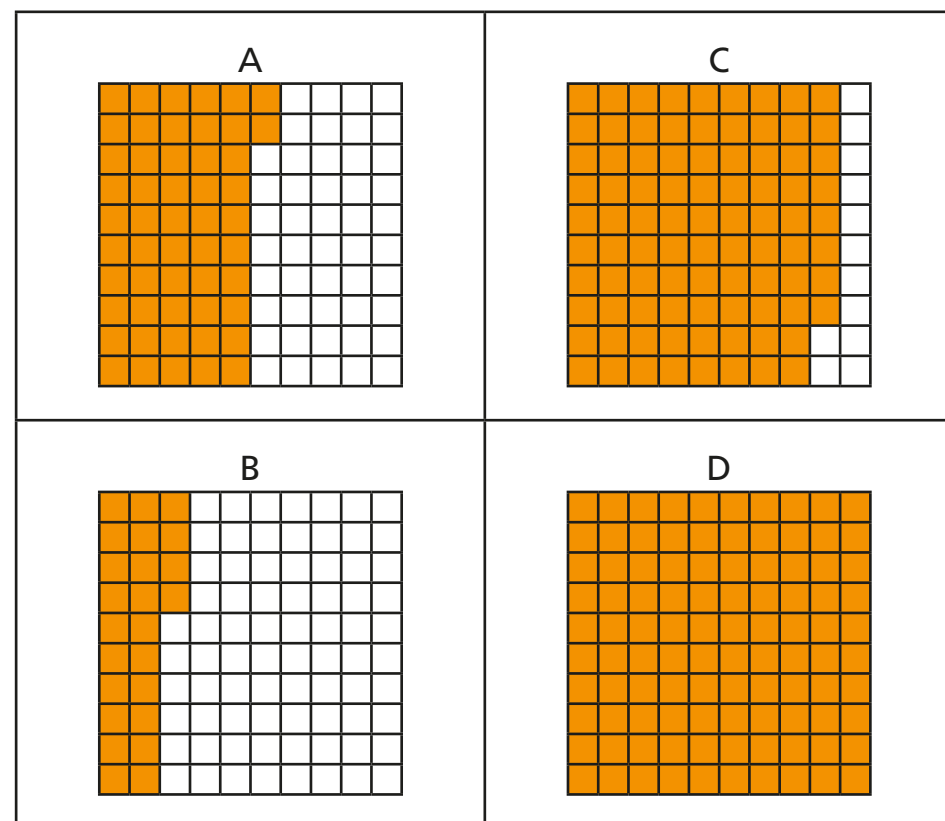


Compare answers with a partner.



Percentages as fractions and decimals

1 Here are four hundred squares.

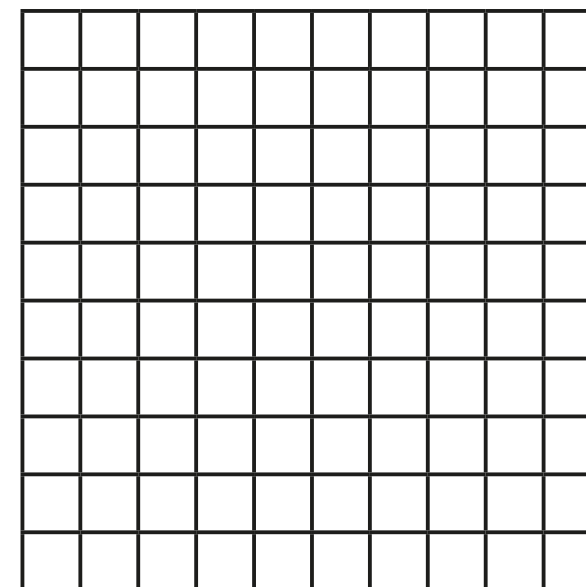


Complete the table.

Hundred square	Percentage	Fraction	Decimal
A		$\frac{52}{100}$	
B			
C			
D			

2 Prove that 0.2 is equal to 20%.

You may use the hundred square to help you.



Why do you think some people think that 0.2 is equal to 2%?

3 Complete the fraction, decimal and percentage equivalents.

a) $32\% = \frac{\boxed{}}{100} = \boxed{}$

$35\% = \frac{\boxed{}}{100} = \boxed{}$

$48\% = \frac{\boxed{}}{100} = \boxed{}$

c) $0.29 = \boxed{}\% = \frac{\boxed{}}{100}$

$0.71 = \boxed{}\% = \frac{\boxed{}}{100}$

$0.03 = \boxed{}\% = \frac{\boxed{}}{100}$

b) $\frac{17}{100} = \boxed{}\% = \boxed{}$

$\frac{9}{100} = \boxed{}\% = \boxed{}$

$\frac{90}{100} = \boxed{}\% = \boxed{}$

4 Write <, > or = to complete the statements.

- a) 50% $\frac{5}{100}$ d) $\frac{40}{100}$ 40%
- b) 25% $\frac{50}{100}$ e) $\frac{70}{100}$ 7%
- c) 14% $\frac{41}{100}$ f) 82% $\frac{82}{100}$

5 Write the values in order from smallest to greatest.

- a) 33% $\frac{30}{100}$ 3% $\frac{13}{100}$

- b) 299% $\frac{91}{100}$ 9% $\frac{9}{10}$

- c) 2.5 $\frac{25}{100}$ 250 25% of 100 $\frac{25}{1000}$

6 Convert the fractions to hundredths.

Complete the decimal and percentage equivalents.

a) $\frac{150}{300} = \frac{\boxed{}}{100} = \boxed{} = \boxed{}\%$

b) $\frac{25}{500} = \frac{\boxed{}}{100} = \boxed{} = \boxed{}\%$

c) $\frac{48}{300} = \frac{\boxed{}}{100} = \boxed{} = \boxed{}\%$

d) $\frac{18}{50} = \frac{\boxed{}}{100} = \boxed{} = \boxed{}\%$

e) $\frac{13}{25} = \frac{\boxed{}}{100} = \boxed{} = \boxed{}\%$

7 Circle all the fractions that are greater than or equal to 50%.

$\frac{10}{50}$

$\frac{4}{5}$

$\frac{50}{100}$

$\frac{30}{80}$

$\frac{1}{50}$

$\frac{70}{140}$

8 Jack and Dora go shopping with the same amount of money.

Jack spends $\frac{1}{3}$ of his money.

Dora spends 30% of her money.

a) Who spends more money? _____

Use fraction and percentage equivalence to explain your answer.

b) Jack and Dora each started with £300

How much money do they each have left?

Jack

Dora



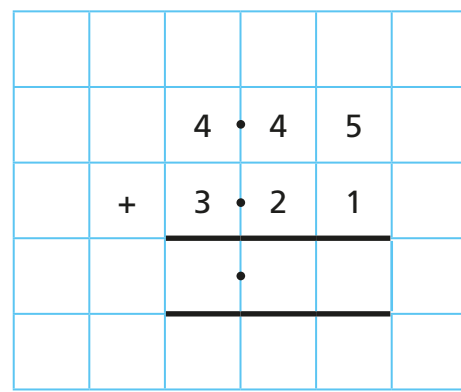
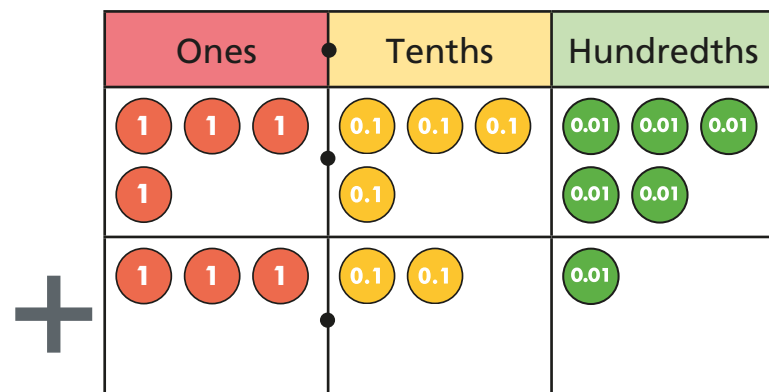
Adding decimals with the same number of decimal places



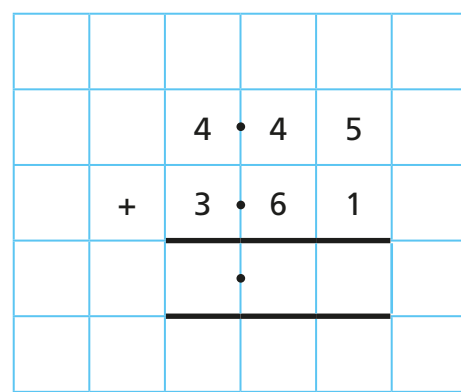
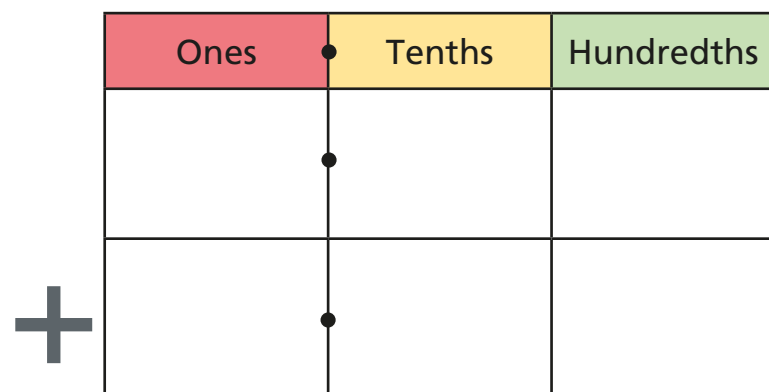
1 Complete the additions.

Use the place value charts to help you.

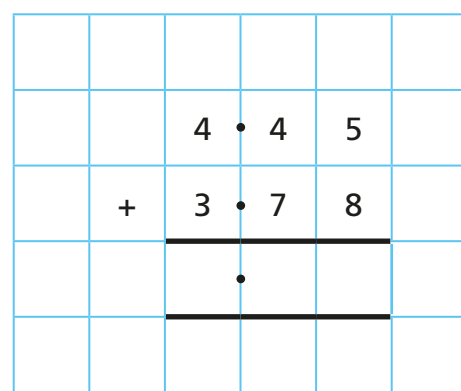
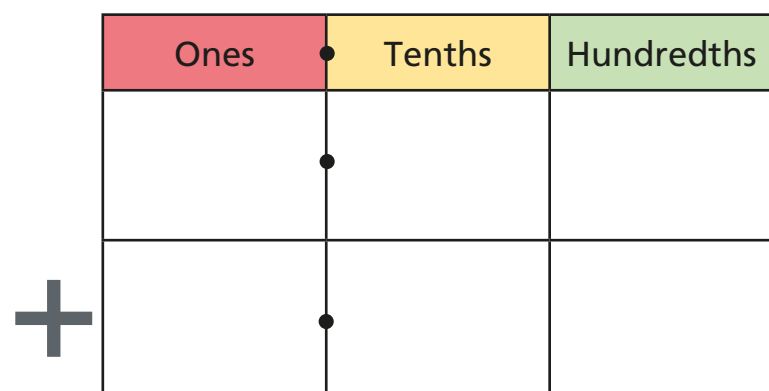
a) $4.45 + 3.21 =$



b) $4.45 + 3.61 =$

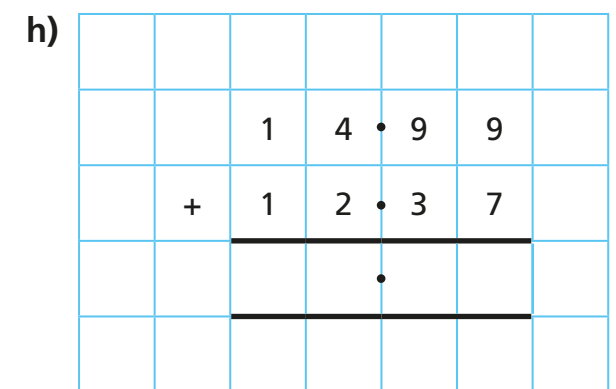
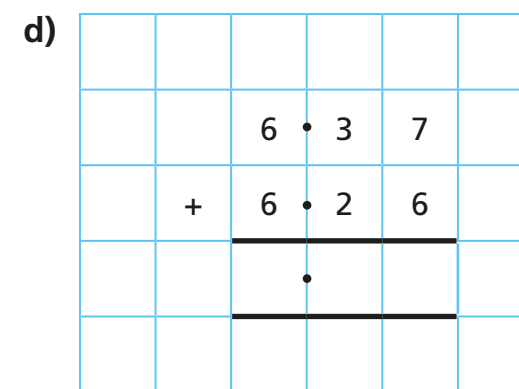
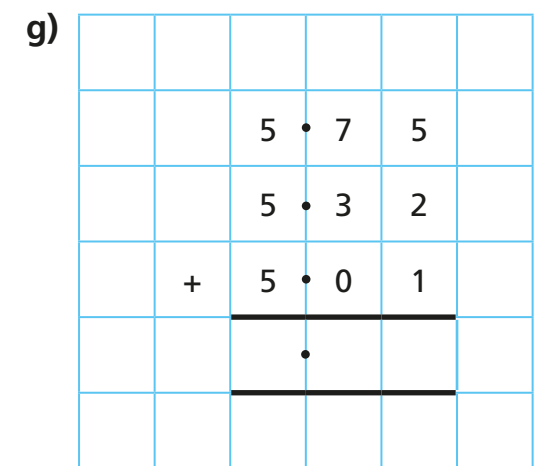
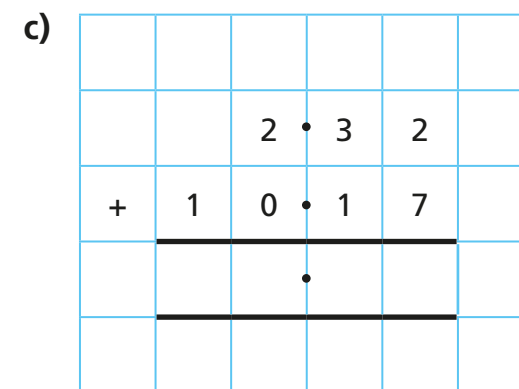
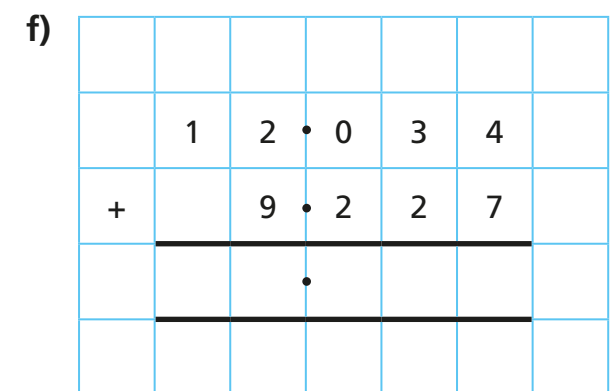
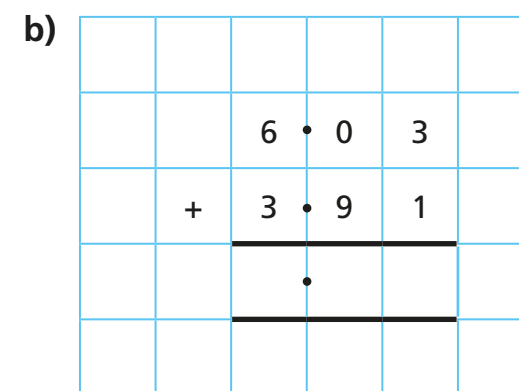
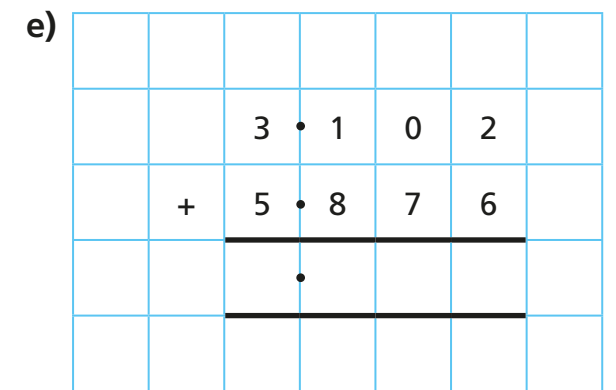
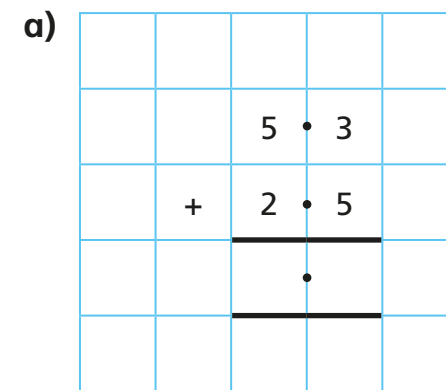


c) $4.45 + 3.78 =$



Which calculation was easier? Talk about it with a partner.

2 Use the column method to work out the additions.



3 Work out the calculations.

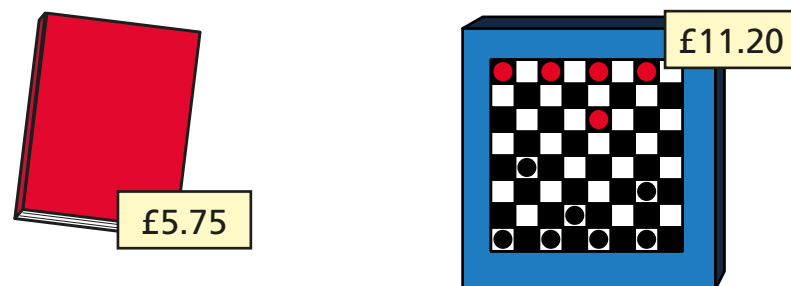
Write $<$, $>$ or $=$ to make the statements correct.

a) $0.64 + 4.79$ $5.01 + 0.23$

b) $7.427 + 3.238$ $5.427 + 5.832$

c) $3.08 + 4.63$ $4.84 + 2.87$

4 Teddy is working out the total cost of these items.



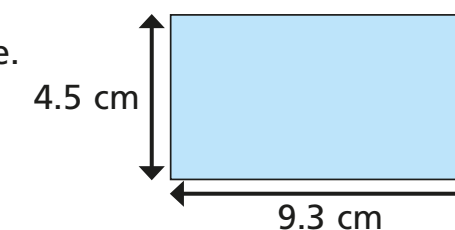
Here are his workings.

$$\begin{array}{r} 5 \cdot 7 \quad 5 \\ + \quad 1 \quad 1 \cdot 2 \quad 0 \\ \hline 6 \quad 8 \cdot 7 \quad 0 \end{array}$$

Talk to a partner about Teddy's mistake.

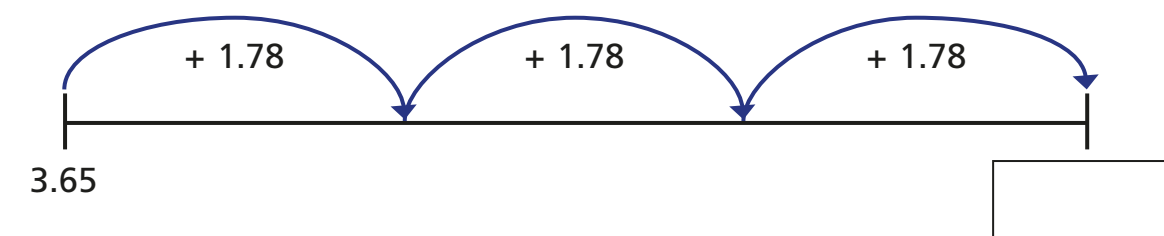
Work out the correct answer.

5 Work out the perimeter of the shape.

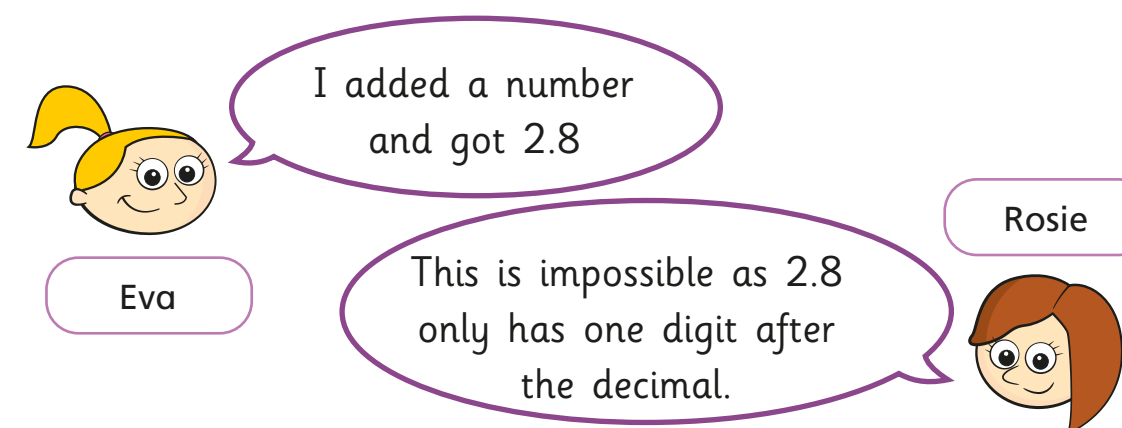


perimeter = cm

6 Complete the number line.



7 Eva starts with the number 1.62



Is Rosie correct? _____

Talk about it with a partner.

Adding decimals with a different number of decimal places



- 1 Ron is adding 1.4 and 2.53
He makes each number with counters.

Ones	Tenths	Hundredths
●	● ● ● ●	
● ●	● ● ● ● ●	● ● ●

- a) What is the answer to Ron's calculation?
- b) Explain your method to a partner.
- c) Did you have to make an exchange? _____.

- 2 Work out the additions.

a)

		3	•	0	2
	+	1	•	6	
			•		

c)

		2	•	8	
	+	3	•	4	5
			•		

b)

			1	3	•	5
	+			0	•	2
						3

d)

				6	•	1	5
	+	1	3	•	9		
					•		

- 3 Filip is adding two numbers together.
He writes it as a column addition.

$$\begin{array}{r} 13.8 \\ + 1.95 \\ \hline 33.3 \\ \hline 11 \end{array}$$

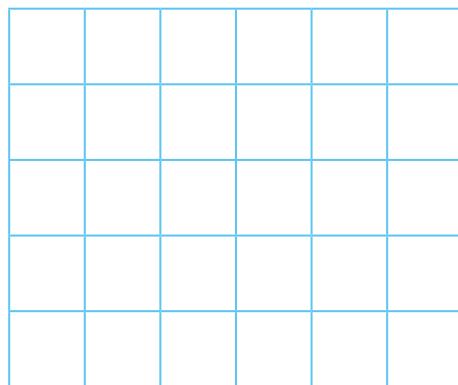
- a) What mistake has Filip made?

- b) Use the column method to work out the correct answer.

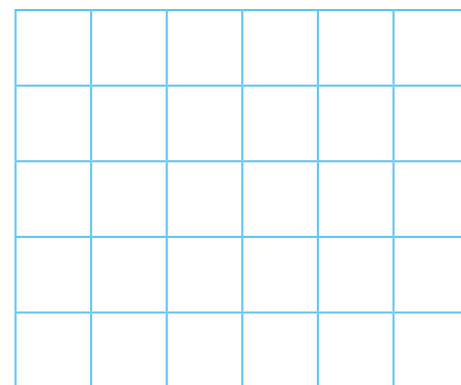
- 4 Use the column method to work out the additions.
- a) 2.36 + 1.9 b) 14.82 + 3.7

5 Use the column method to work out the additions.

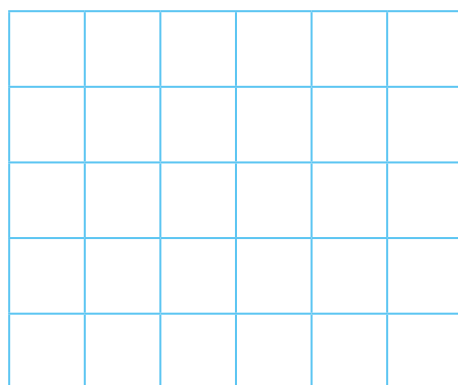
a) $0.59 + 11.9$



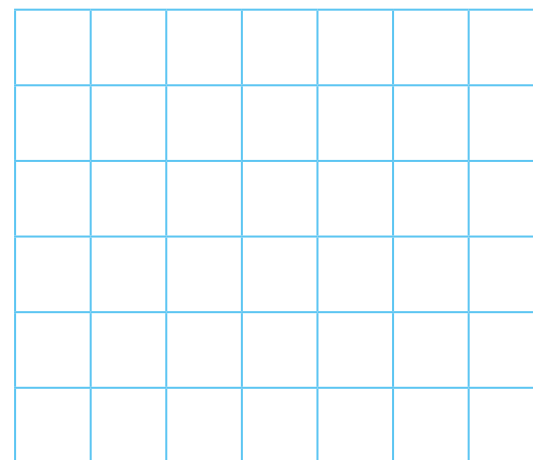
c) $0.591 + 1.73$



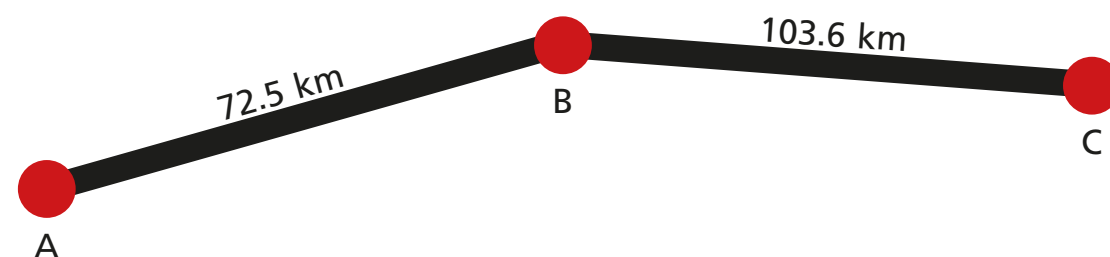
b) $77.34 + 1.82$



d) $3.2 + 1.84 + 0.931$



6 Mr Hall drives from point A to point B, then on to point C.



What is the total distance that Mr Hall drives?

km

7 Here are four number cards.

3.8

4.19

0.72

11.46

a) What is the greatest total you can make by adding two of the numbers?

Complete the calculation.

+ =

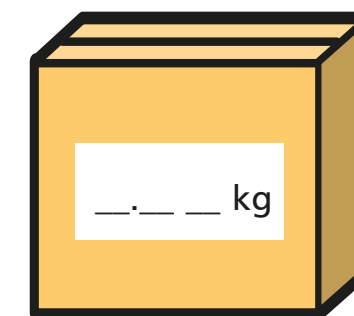
b) What is the sum of the four numbers?

8 Work out the missing digits.

a) $__4.3 + 1__.37 = 39.67$

b) $4.8__ + __.__ = 12.65$

9 The total mass of the two boxes is 10.85 kg.
What could the mass of each box be?



How many answers can you find?