



Tenths as decimals



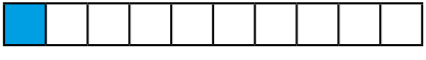


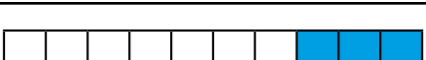
1 Shade the bar models to represent the amounts.

a) 7 tenths 

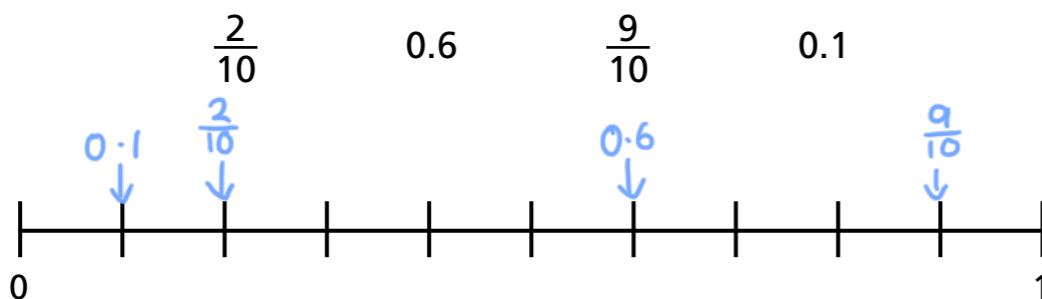
b) $\frac{4}{10}$ 

c) 0.3 

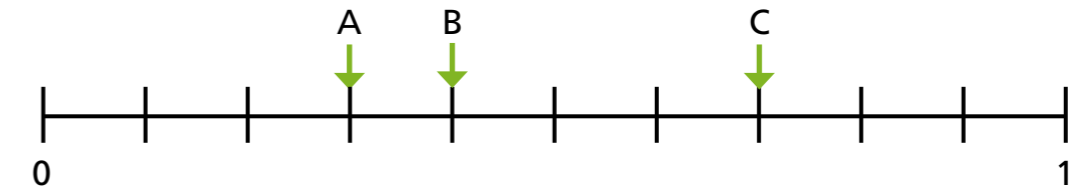
2 Complete the table to show the fractions and decimals the bar models represent.

Bar model	Fraction	Decimal
	$\frac{1}{10}$	0.1
	$\frac{5}{10}$	0.5
	$\frac{6}{10}$	0.6
	$\frac{3}{10}$	0.3

3 Write each fraction and decimal in the correct place on the number line.



4 Work out the values of A, B and C.
Give your answers as fractions and decimals.



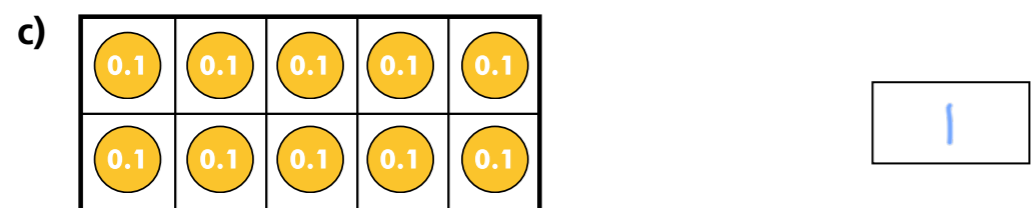
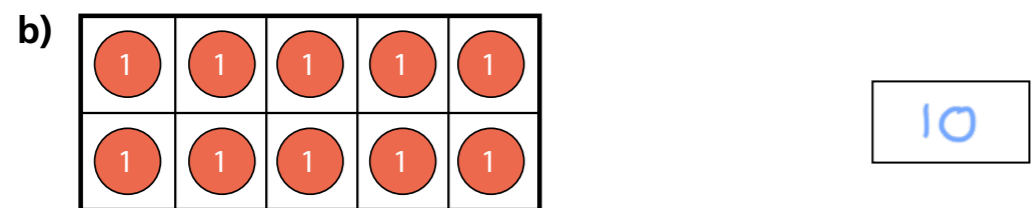
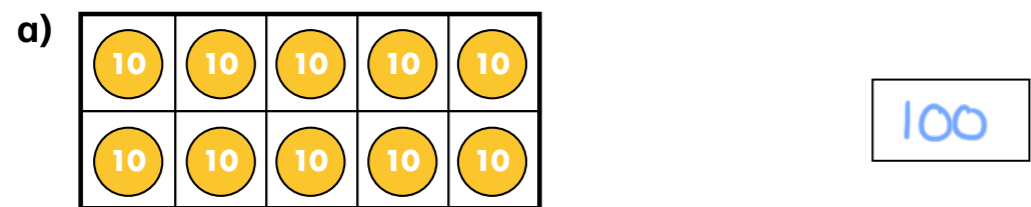
A $\frac{3}{10}$ or 0.3

B $\frac{4}{10}$ or 0.4

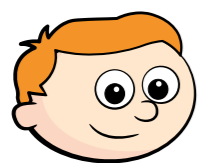
C $\frac{7}{10}$ or 0.7

5 Match the equivalent fractions, decimals and words.

6 What is the total value represented by each ten frame?



7



Nine tenths can be written 0.9, so ten tenths must be 0.10

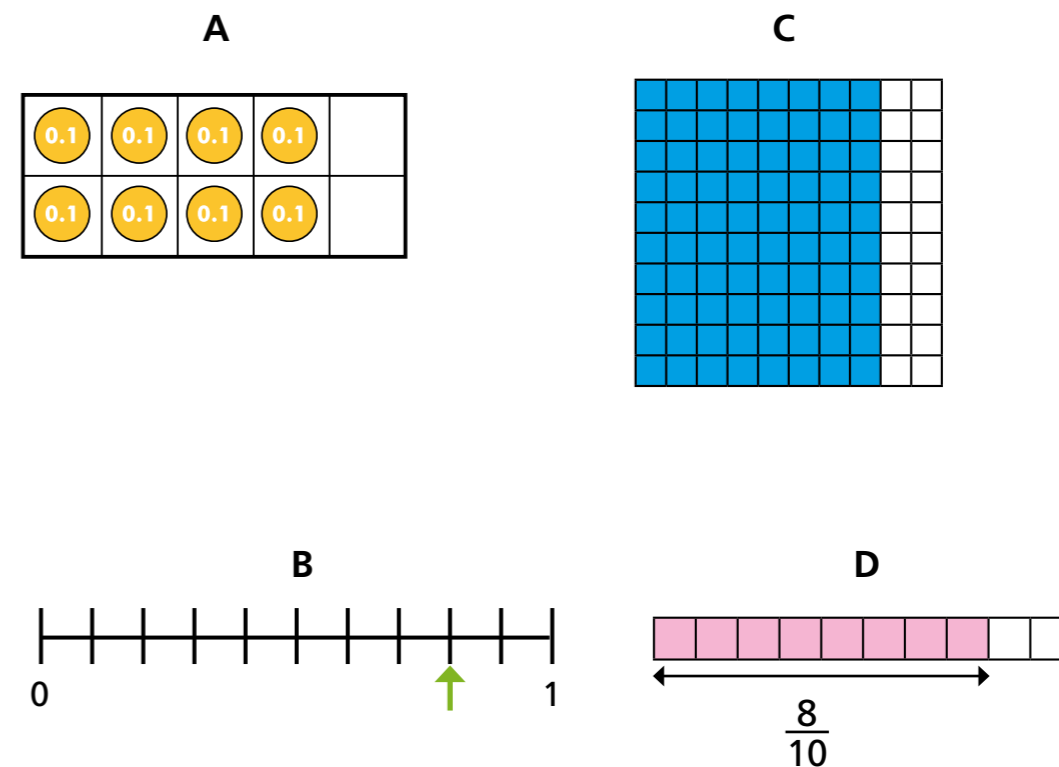
Do you agree with Ron? NO

Explain your answer.

Ten tenths is one whole.



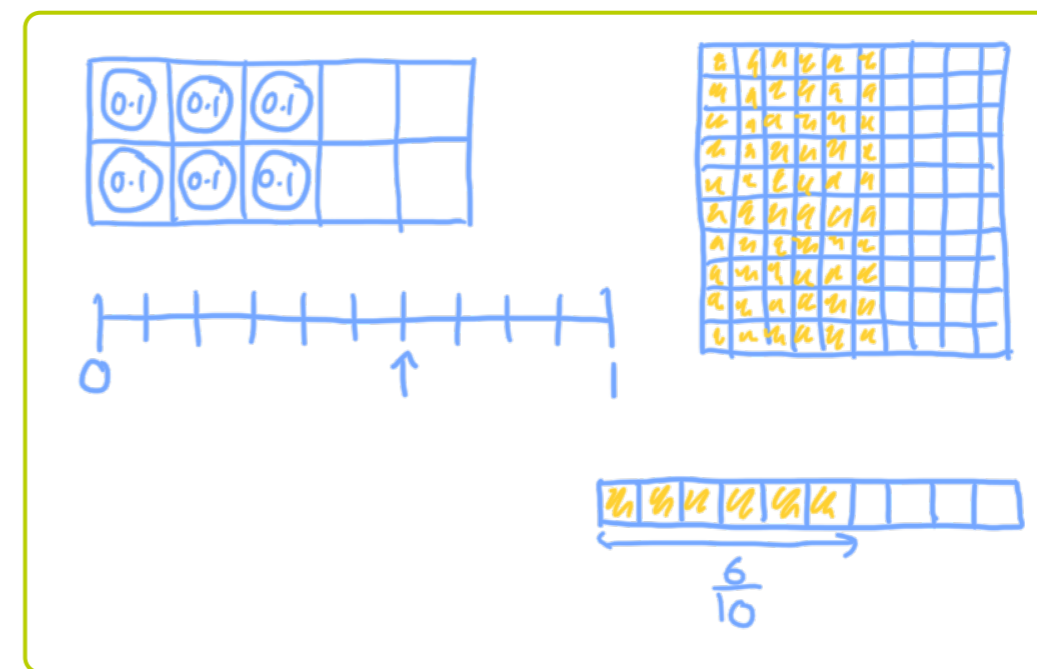
8 Eight tenths can be represented in all of the ways shown.



Which do you think is the best representation? _____

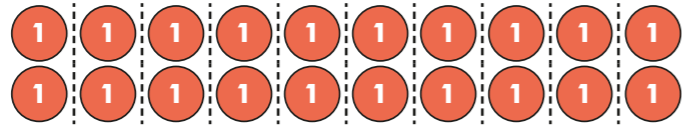
Discuss your answer with a partner.

Represent six tenths in each different way.



Dividing 2 digits by 10

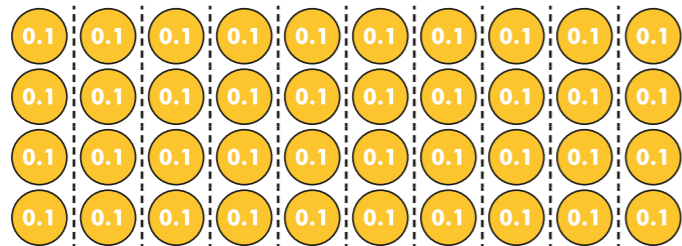
1 a) The array shows 20 shared between 10



Complete the calculation.

$$20 \div 10 = \boxed{2}$$

b) The array shows 4 shared between 10



Complete the calculation.

$$4 \div 10 = \boxed{0.4}$$

c) Complete the calculation.

$$24 \div 10 = \boxed{2.4}$$

Compare answers with a partner.



2 a) Draw counters to represent 30 on the place value chart.

Tens	Ones	Tenths
0 0 0		

Complete the division.

$$30 \div 10 = \boxed{3}$$

Draw counters to show your answer on the place value chart.

Tens	Ones	Tenths
	0 0 0	

b) Draw counters to show 35 on the place value chart.

Tens	Ones	Tenths
0 0 0	0 0 0 0 0	

Complete the division.

$$35 \div 10 = \boxed{3.5}$$

Draw counters to show your answer on the place value chart.

Tens	Ones	Tenths
	0 0 0	0 0 0 0 0

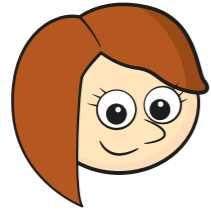
c) What do you notice about your answers in parts a) and b)?

d) Complete the sentence.

When dividing by 10, you move the counters $\boxed{1}$ place to the right.



3



You can't share 13 between 10 because 13 is not a multiple of 10

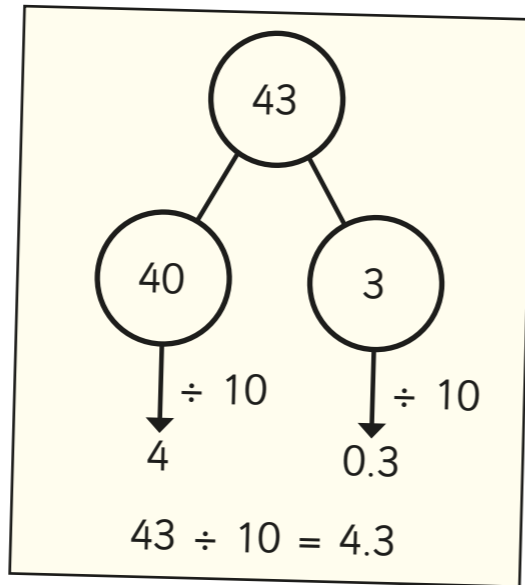
Do you agree with Rosie? No

Explain your answer.

4

Dexter is calculating $43 \div 10$

Here are Dexter's workings.

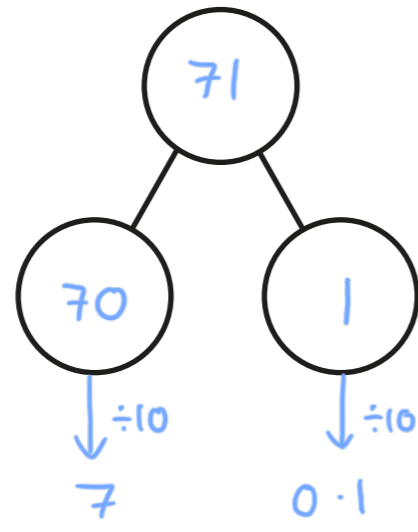
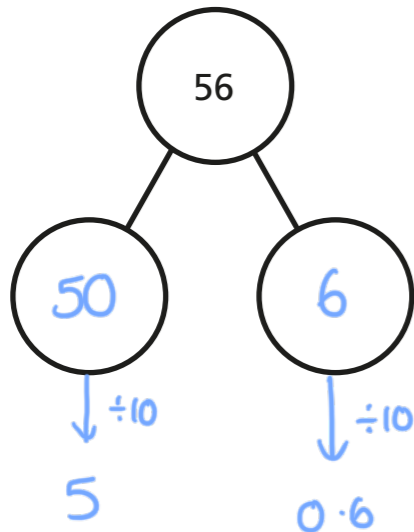


a) Talk to a partner about why Dexter's method works.

b) Use Dexter's method to complete the divisions.

$56 \div 10 = 5.6$

$71 \div 10 = 7.1$



5

Complete the divisions.

a) $37 \div 10 = 3.7$

e) $80 \div 10 = 8$

b) $11 \div 10 = 1.1$

f) $2.9 = 29 \div 10$

c) $48 \div 10 = 4.8$

g) $63 \div 10 = 6.3$

d) $99 \div 10 = 9.9$

h) $3.9 = 39 \div 10$

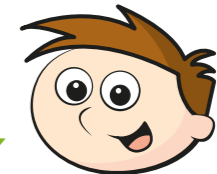
6

This Gattegno chart shows the number 37

100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

a)

I need to move the counters one place to the left, so $37 \div 10 = 26$



Do you agree with Teddy? No

Explain your answer.

$37 \div 10 = 3.7$

b) How can you use a Gattegno chart to divide by 10?

Hundredths as decimals

1 Complete the table.

Hundred square	Words	Fraction	Decimal
	thirty-six hundredths		
		$\frac{82}{100}$	
			0.27
	seven tenths		
			0.3



2 Draw decimal place value counters to represent the numbers.

a) 0.03



c) 0.63



b) 0.6



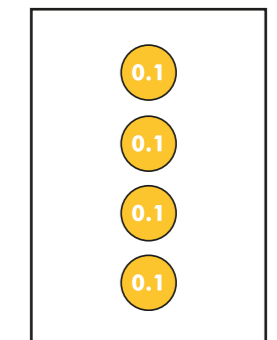
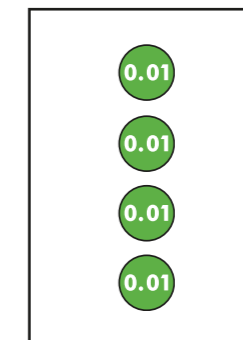
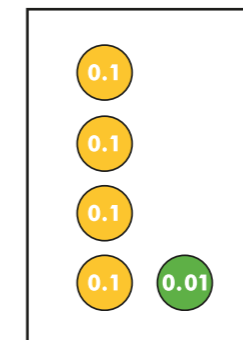
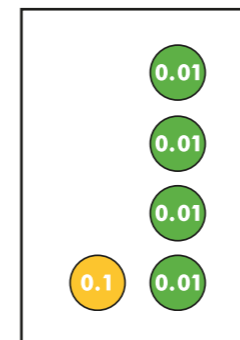
d) 0.36



3 The counters represent tenths and hundredths.

a) Match the decimals to the groups of counters.

0.04 0.4 0.14 0.41

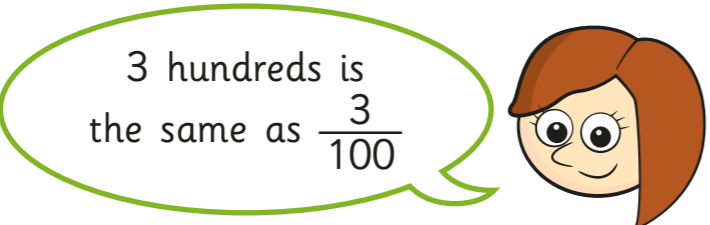


b) Write each decimal as a fraction.

0.04 = 0.4 = 0.14 = 0.41 =



4



Is Rosie correct? NO

Explain your answer.

3 hundreds = 300 3 hundredths = $\frac{3}{100}$

5

Match the decimals to the descriptions.

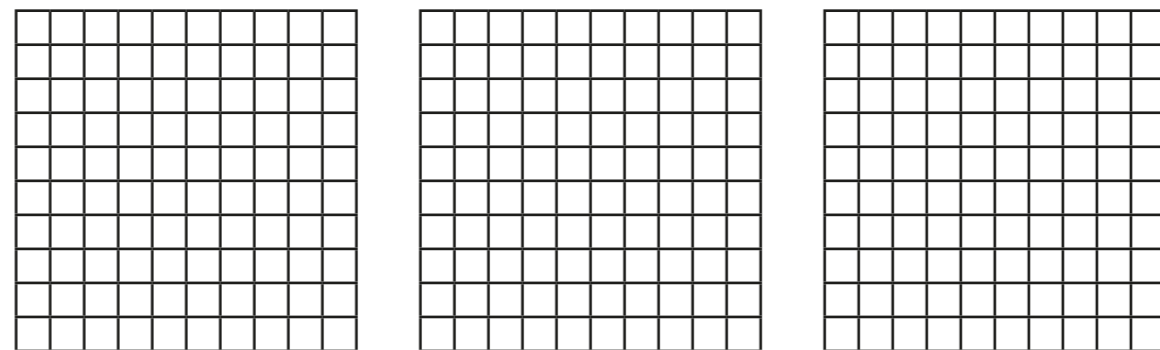
Some of the numbers can be described in two ways.

1.3	one tenth and three hundredths
0.03	thirty hundredths
0.3	one and three tenths
0.13	thirteen tenths
	thirteen hundredths
	three tenths
	three hundredths

(Note: Blue lines connect 1.3 to 'one and three tenths' and 'thirteen tenths'; 0.03 to 'thirty hundredths'; 0.3 to 'three tenths'; and 0.13 to 'thirteen hundredths'.)

6

Shade the hundred squares to represent 12 hundredths in three different ways. *Various answers*



Compare answers with a partner.

What is the same? What is different?

7

Dora says: "0.6 of the hundred square is shaded."

Ron says: "6 tenths of the hundred square is shaded."

Whitney says: "0.60 of the hundred square is shaded."

Jack says: "60 hundredths of the hundred square is shaded."

Who do you agree with? All

Explain why.



Dividing 1 and 2 digits by a hundred

1 a) Draw counters to show 8 on the place value chart.

Ones	Tenths	Hundredths
○○○○○○○○○		

b) Complete the division.

$$8 \div 100 = 0.08$$

c) Draw counters to show your answer on the place value chart.

Ones	Tenths	Hundredths
		○○○○○○○○○

What do you notice?

2 a) Draw counters to show 80 on the place value chart.

Tens	Ones	Tenths	Hundredths
○○○○○○○			

b) Complete the division.

$$80 \div 100 = 0.8$$

c) Draw counters to show your answer on the place value chart.

Tens	Ones	Tenths	Hundredths
		○○○○○○○	○○

What do you notice?

3 Complete the sentence.

To divide by 100 you move the counters 2 places to the right.

4 Complete the calculations.

a) $3 \div 100 = 0.03$

d) $60 \div 100 = 0.6$

b) $90 \div 100 = 0.9$

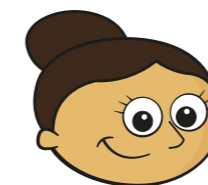
e) $50 \div 100 = 0.5$

c) $5 \div 100 = 0.05$

f) $0.02 = 2 \div 100$

5 Dora is working out $48 \div 100$ using a place value chart.

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



To divide by 100 you move two places to the right, so $48 \div 100$ is 40.08

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

a) Explain the mistake that Dora has made.

She hasn't moved all of the counters.

b) Complete the division.

$$48 \div 100 = 0.48$$





6 This Gattegno chart shows the number 37

10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

a) Explain how you would work out $37 \div 100$ using this chart.

Move the counters down 2

Compare answers with a partner.

b) Use the Gattegno chart to complete the division.

$$92 \div 100 = \boxed{0.92}$$

c) Use the Gattegno chart to complete the division.

$$19 \div 100 = \boxed{0.19}$$



7 Complete the calculations.

a) $31 \div 100 = \boxed{0.31}$

e) $\boxed{0.29} = 29 \div 100$

b) $60 \div 100 = \boxed{0.6}$

f) $\boxed{58} \div 100 = 0.58$

c) $\boxed{0.85} = 85 \div 100$

g) $0.5 = \boxed{50} \div 100$

d) $0.01 = \boxed{1} \div 100$

h) $0.3 = 30 \div \boxed{100}$

8 Complete the calculations.

a) $36 \div 10 = \boxed{3.6}$

b) $91 \div 10 = \boxed{9.1}$

$$36 \div 100 = \boxed{0.36}$$

$$91 \div 100 = \boxed{0.91}$$

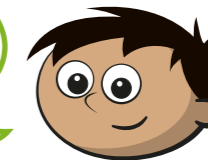
$$36 \div 10 \div 10 = \boxed{0.36}$$

$$91 \div 10 \div 10 = \boxed{0.91}$$

What do you notice?

9

Dividing by 100 is always the same as dividing by 10 twice.



Do you agree with Amir? Yes

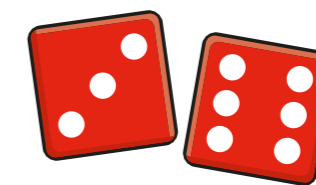
Explain your answer.

10

Roll two dice to make two 2-digit numbers.

Divide your numbers by 100. Record your answer. Roll again.

Here is an example.



$36 \div 100$ and $63 \div 100$

$$\boxed{} \div 100 = \boxed{} \text{ and } \boxed{} \div 100 = \boxed{}$$

$$\boxed{} \div 100 = \boxed{} \text{ and } \boxed{} \div 100 = \boxed{}$$

What is the greatest possible answer you can get? $\boxed{0.66}$

What is the smallest possible answer? $\boxed{0.11}$

Compare answers with a partner.

