

Mathletics

# Fractions, Decimals & Percentages Worksheets



Teacher Solutions

Year 5

# Fractions, decimals and percentages – tenths

Decimal fractions also express parts of a whole. This strip has been divided into 10 equal parts. Three out of ten or  $\frac{3}{10}$  is shaded.

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

We can also express this as 0.3. There are no whole units and 3 tenths.

## 1 Write the shaded common fraction and its equivalent decimal fraction:

a

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

$\frac{6}{10}$       0.6

b

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

$\frac{4}{10}$       0.4

c

$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

$\frac{3}{10}$       0.3

## 2 Shade the fraction strips to match the common fraction or decimal fraction:

a 0.8

--	--	--	--	--	--	--	--	--	--

b  $\frac{5}{10}$

--	--	--	--	--	--	--	--	--	--

c 0.4

--	--	--	--	--	--	--	--	--	--

d 0.9

--	--	--	--	--	--	--	--	--	--

## 3 Use a ruler and a pencil to divide the wholes into tenths. Shade the given amounts and express as decimals:

a

--	--	--	--	--	--	--	--	--	--

$\frac{4}{10}$       0.4

b

--	--	--	--	--	--	--	--	--	--

$\frac{8}{10}$       0.8

c

--	--	--	--	--	--	--	--	--	--

$\frac{5}{10}$       0.5

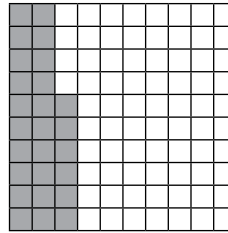
# Fractions, decimals and percentages – tenths and hundredths

A hundredth is a tenth of a tenth.

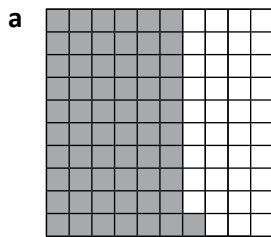
Here, 26 hundredths have been shaded.

We write this as **0.26**

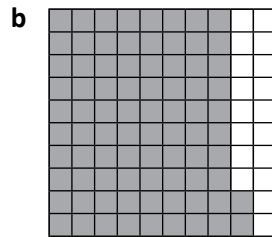
There are no units, 2 tenths and 6 hundredths.



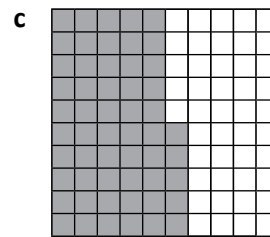
**1** Use a ruler and a pencil to divide these into hundredths and then shade the specified amounts:



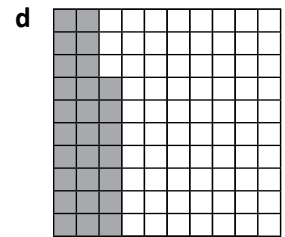
$$\frac{61}{100} \quad 0 \cdot 6 \quad 1$$



$$\frac{82}{100} \quad 0 \cdot 8 \quad 2$$

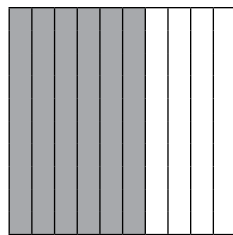


$$\frac{55}{100} \quad 0 \cdot 5 \quad 5$$

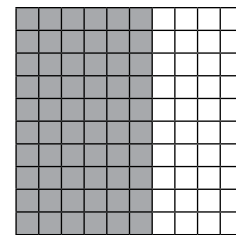


$$\frac{27}{100} \quad 0 \cdot 2 \quad 7$$

Six tenths are shaded here.

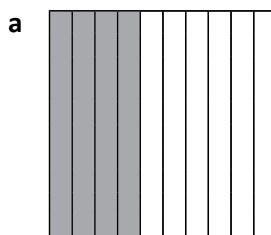


Sixty hundredths are shaded here.



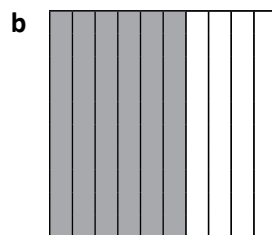
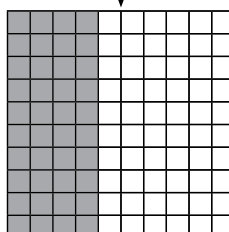
What do you notice? Sixty hundredths and six tenths have the same value  $0.60 = 0.6$

**2** Check that the above statement is true by shading the amounts. Are they the same? *Yes*



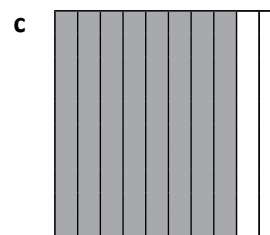
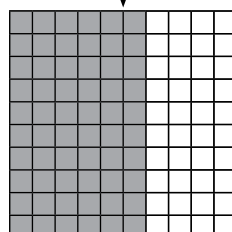
4 tenths

40 hundredths



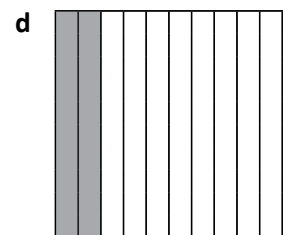
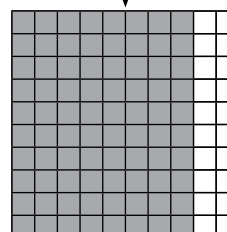
6 tenths

60 hundredths



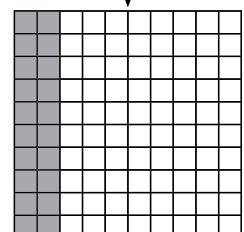
8 tenths

80 hundredths



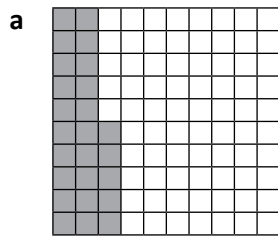
2 tenths

20 hundredths

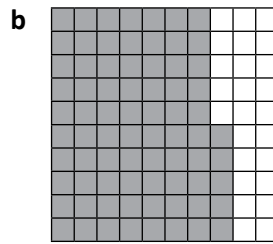


# Fractions, decimals and percentages – tenths and hundredths

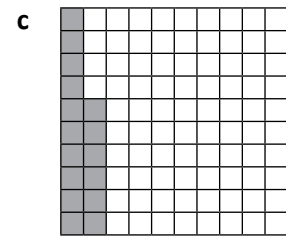
**3** Complete these statements. The first one has been done for you.



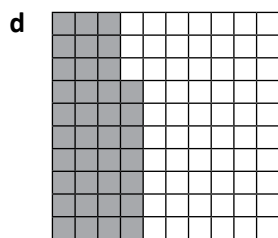
This is  $\frac{25}{100}$   
It can be renamed as:  
 $\frac{2}{10}$  and  $\frac{5}{100}$



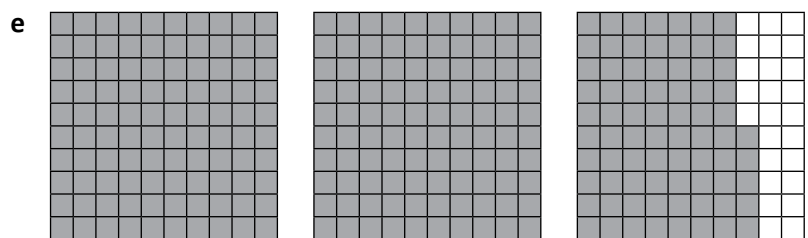
This is  $\frac{75}{100}$   
It can be renamed as:  
 $\frac{7}{10}$  and  $\frac{5}{100}$



This is  $\frac{16}{100}$   
It can be renamed as:  
 $\frac{1}{10}$  and  $\frac{6}{100}$

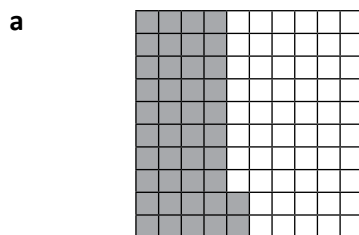


This is  $\frac{37}{100}$   
It can be renamed as:  
 $\frac{3}{10}$  and  $\frac{7}{100}$

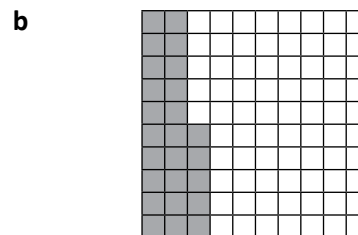


This represents 2 wholes and  $\frac{75}{100}$   
It can be renamed as:  
 $2$  wholes,  $\frac{7}{10}$  and  $\frac{5}{100}$

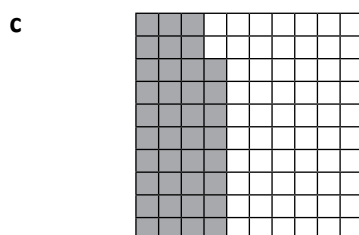
**4** Complete the missing information:



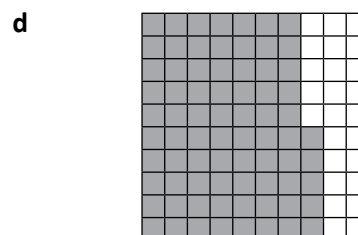
$$\frac{42}{100} = \frac{4}{10} + \frac{2}{100} = 0.042$$



$$\frac{25}{100} = \frac{2}{10} + \frac{5}{100} = 0.025$$



$$\frac{38}{100} = \frac{3}{10} + \frac{8}{100} = 0.038$$



$$\frac{75}{100} = \frac{7}{10} + \frac{5}{100} = 0.075$$

# Fractions, decimals and percentages – place value to thousandths

A thousandth is a tenth of a hundredth.

Units		Tenths	Hundredths	Thousandths
2	•	2	5	6

This number has 2 units, 2 tenths, 5 hundredths and 6 thousandths.

## 1 Write these numbers in the place value chart:

	Thousands	Hundreds	Tens	Units	Tenths	Hundredths	Thousandths
a five tens, 3 units and eight tenths			5	3	• 8		
b 7 hundreds, 8 tens, four units, two tenths and 3 hundredths		7	8	4	• 2	3	
c nine tens, 8 tenths and 4 thousandths			9	0	• 8	0	4
d 6 hundreds, eight tenths, 4 hundredths and 3 thousandths		6	0	0	• 8	4	3
e four units, nine tenths and eight hundredths				4	• 9	8	
f three units, four tenths and two hundredths				3	• 4	2	
g 2 tens, 3 units, four hundredths and six thousandths			2	3	• 0	4	6
h 8 thousandths				0	• 0	0	8

## 2 Answer true or false to the following questions. Score 0.5 points for each correct answer.

- a The value of 4 in 56.48 is 4 hundredths.
- b The value of 3 in 38.65 is 3 tens.
- c The value of 7 in 0.75 is 7 hundredths.
- d Thomas thought of a decimal number between 5.61 and 5.91. The number could have been 5.64.
- e The value of 8 in 9.998 is 8 thousandths.
- f 97.3 is nine tens, seven units and three hundredths.

T or F	Score
<i>F</i>	
<i>T</i>	
<i>F</i>	
<i>T</i>	
<i>T</i>	
<i>F</i>	
<b>Total</b>	

# Fractions, decimals and percentages – place value to thousandths

When comparing and ordering decimals, the place value of a digit is crucial. The further the digit is to the left, the greater its value.

Even though one thousandth sounds big, it is actually very small. Remember, one thousandth is just a single piece of a whole divided into a thousand parts. One tenth is actually one hundred times bigger than one thousandth.

3 Which is bigger? Circle the correct answer:

a 0.7 or 0.07

b 0.56 or 6 tenths

c 7.5 or  $\frac{7}{10}$

d 15 or 0.15

e  $\frac{1}{2}$  or 0.25

f 35 or 0.035

4 Use < or > or = to show the relationship between the two numbers:

a 6.89 > 6.76

b 70.908 > 7.908

c 9.08 < 9.8

d 5.098 < 5.98

e 0.56 = 0.560

f 11.80 = 11.8

5 This chart shows the vital statistics of some Roosters Football Club players.

Name	Height	Weight
Lanky	2.06 m	79.054 kg
Crusher	1.96 m	110.652 kg
Crumber	1.73 m	79.934 kg
Cazaly	1.84 m	88.91 kg
Stomper	1.81 m	99.552 kg
Whale	2.01 m	118.236 kg
Twinkle Toes	1.74 m - 1.83 m	65.789 kg



a Who is tallest? Who is shortest?

Lanky – tallest      Crumber – shortest

b Put these players in order of lightest to heaviest: Crumber, Stomper, Cazaly:

Crumber (79.934 kg), Cazaly (88.91 kg), Stomper (99.552 kg)

c Which 2 players would you have playing in the ruck? (Rucks have to be tall.)

Lanky and Whale

d Who would you least like to have tackle you? Why?

Whale – he is the heaviest.

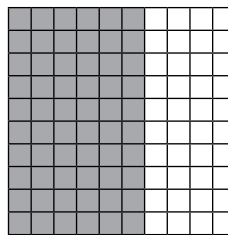
e Twinkle Toes twirled out of the club before his height was measured. We know he is taller than Crumber and shorter than Cazaly. What could his height be? Add it to the table.

# Fractions, decimals and percentages – percentages

Percent means part per hundred and is expressed using the symbol %.

Here, 60% has been shaded grey.

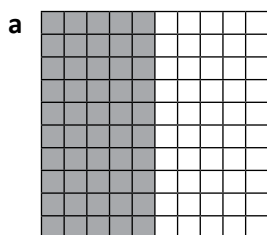
It is the same as 60 hundredths.  $\frac{60}{100} = 0.60 = 60\%$



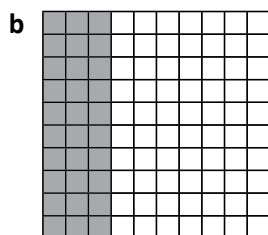
- 1 Think of at least five times you see the % sign or use percentages:

*Answers will vary.*

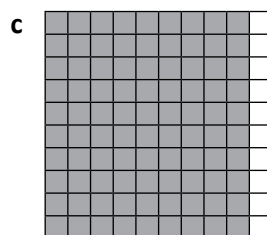
- 2 Fill in the missing values and shade the grids:



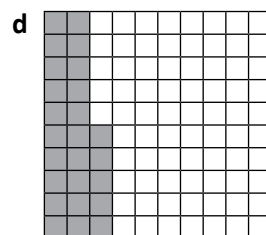
$\frac{50}{100}$	0.5	50%
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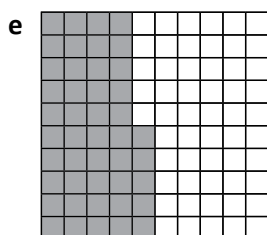
$\frac{30}{100}$	0.3	30%
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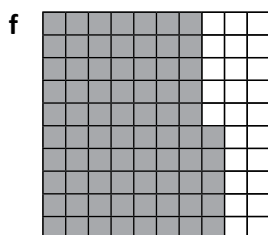
$\frac{90}{100}$	0.9	90%
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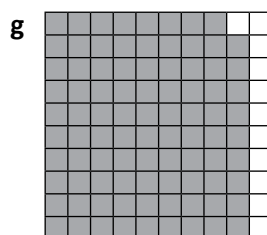
$\frac{25}{100}$	0.25	25%
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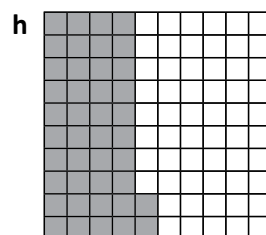
$\frac{45}{100}$	0.45	45%
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$\frac{75}{100}$	0.75	75%
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$\frac{89}{100}$	0.89	89%
------------------	------	-----



$\frac{42}{100}$	0.42	42%
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- 3 Are these statements correct?

a 75% is greater than 0.5

True

b One quarter is the same as 50%

False

c 45% is greater than 0.5

False

d 0.42 is equivalent to 425

False

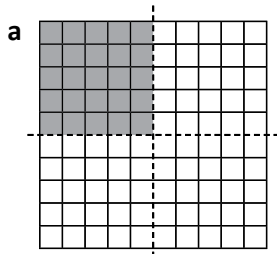
e You score 100% on a test. Your friend scores 20/20. You both received the same score.

True

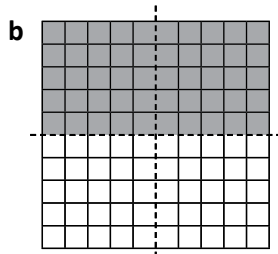
# Fractions, decimals and percentages – percentages

It is useful to know some common percentages such as 25%, 50% or 75%.

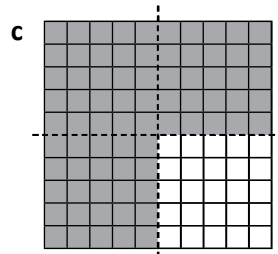
4 Shade the grids and show the following fractions by completing the missing information:



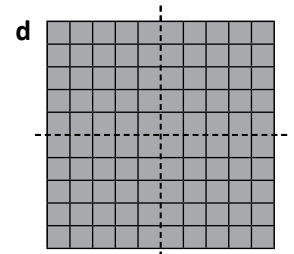
$\frac{1}{4}$	0.25	25%
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$\frac{1}{2}$	0.50	50%
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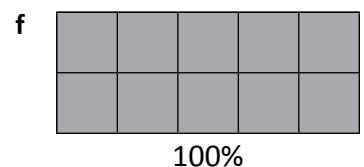
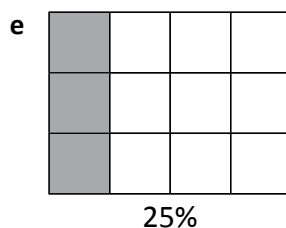
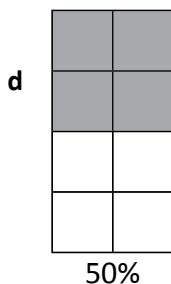
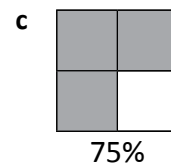
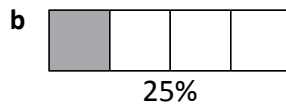
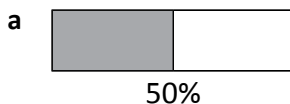


$\frac{3}{4}$	0.75	75%
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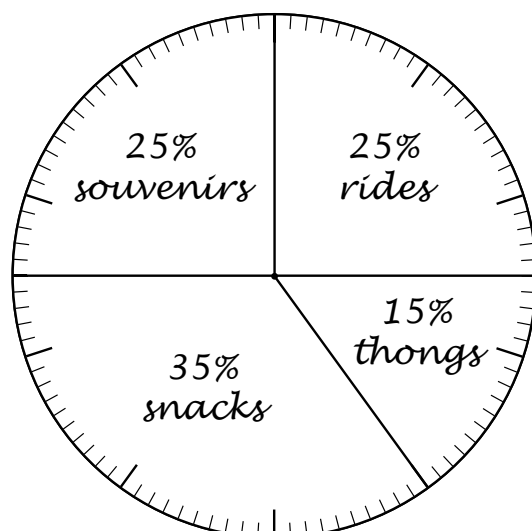


$\frac{4}{4}$	1.0	100%
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5 Shade these shapes to show the following percentages:



6 James goes on holiday. He has \$100 spending money and spends it as outlined below. Show this on the pie graph and label each section of the pie with the correct percentage:







This is a game for 2 or more players. You will race against each other to come up with equivalent fractions, decimals or percentages to match those on cards. You'll need one copy of this page and one copy of page 25 between you.



Cut out the playing cards, mix them up and put them face down in a pile.

Cut out the blank cards on page 25 and divide them between the two of you. Make sure you both have a pencil each.

Turn over the first playing card. Both players write an equivalent fraction, decimal or percentage to match it on one of the blank cards and cover the playing card as quickly as possible.

For example, the playing card may say 50% – you could write  $\frac{1}{2}$  or  $\frac{5}{10}$  or  $\frac{50}{100}$ .

The first person to cover the card with a correct match wins and takes the pair. The player at the end of the game with the most cards is the winner.

## Playing Cards

$\frac{75}{100}$	25%	$\frac{3}{4}$	$\frac{1}{4}$
0.5	0.25	$\frac{1}{2}$	50%
0.1	$\frac{1}{10}$	10%	0.75

## Blank Cards




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