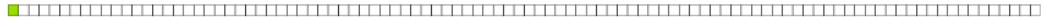


## Decimals and fractions and percentages.

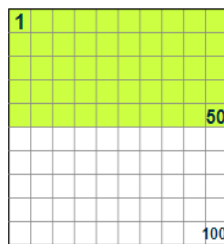
### An introduction to percentages:

When we say "Percent" we are really saying "per 100"

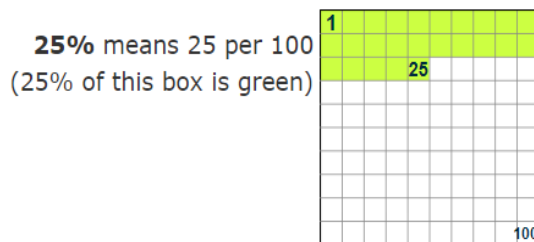
One percent (1%) means 1 per 100.



1% of this line is shaded green: it is very small isn't it?

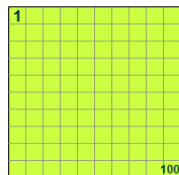


50% means 50 per 100  
(50% of this box is green)



25% means 25 per 100  
(25% of this box is green)

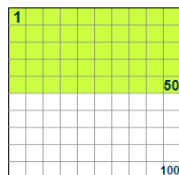
### Examples:



100% means **all**.

Example:

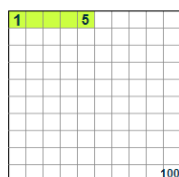
$$100\% \text{ of } 80 \text{ is } \frac{100}{100} \times 80 = 80$$



50% means **half**.

Example:

$$50\% \text{ of } 80 \text{ is } \frac{50}{100} \times 80 = 40$$

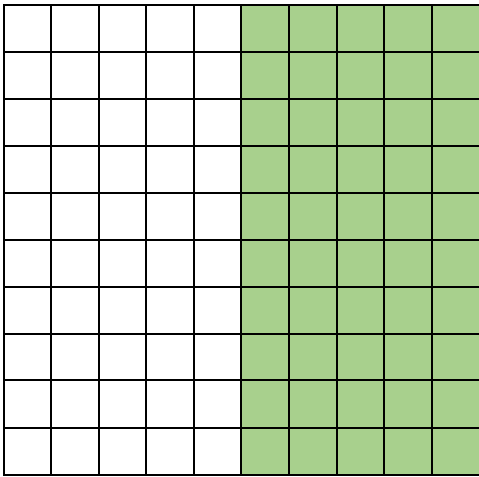


5% means  $\frac{5}{100}$ ths.

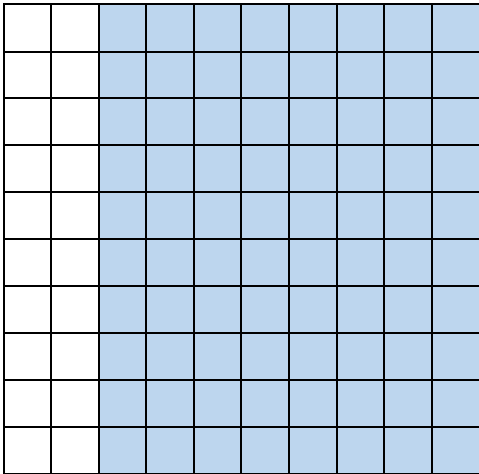
Example:

$$5\% \text{ of } 80 \text{ is } \frac{5}{100} \times 80 = 4$$

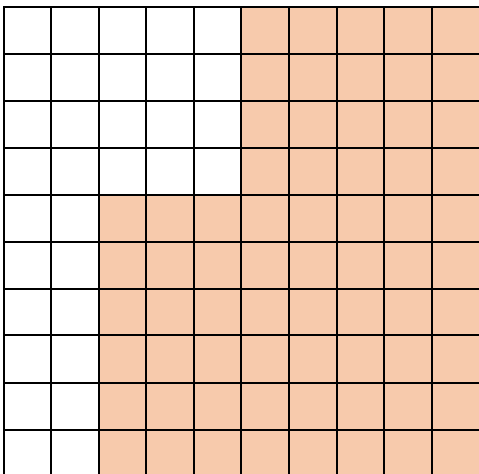
1. Write down the percentage of each grid that is shaded:



= \_\_\_\_\_ %

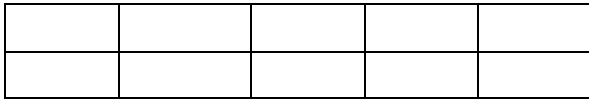


= \_\_\_\_\_ %

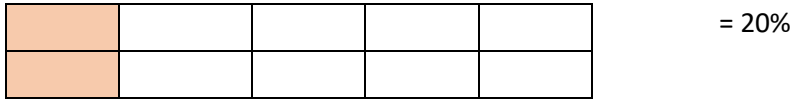


= \_\_\_\_\_ %

2. In this grid there are 10 squares.



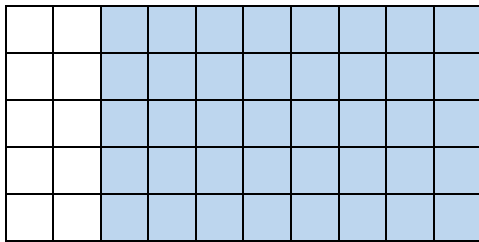
As % is out of 100 each square must be worth 10%. So if I colour 2 squares then I have coloured 20%.



How many squares should you colour to show:

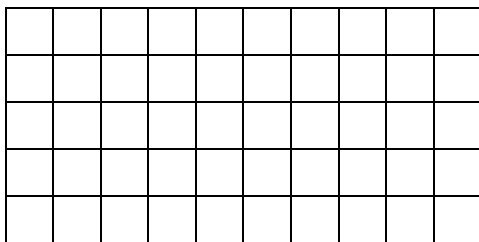
- 40% red,
- 10% green,
- 60% yellow,

In this grid there are 50 squares.



This means each square has to be worth 2%. 40 squares are coloured so that means 80% is coloured.

How many squares should you colour in the grid to show:



- 20% red,
- 50% green,
- 2% yellow,

## Percentages of amounts:

To find 1% of a number you divide it by 100.

To find 10% of a number you divide it by 10.

To find 50% of a number you divide by 2.

(Remember to divide by 10 you move the digits one place to the right and to divide by 100 you move the digits two places to the right.  $100 \div 10 = 10$ ,  $500 \div 10 = 50$  etc)

You can use this to help you with any % questions:

1. Divide these amounts by 10 to find 10%

10% of 50 =

10% of 80 =

10% of 60 =

10% of 70 =

10% of 90 =

2. Divide these numbers by 100 to find 1%:

1% of 500 =

1% of 800 =

1% of 6000 =

1% of 7000 =

3. What if you wanted to find 2% of 500?

4. What about 5% of 6000?

**Percentages of amounts 2:**

How many of these percentages can you find? You can choose Green (easy), Amber (just right) or Red (tricky), or you can do all 3 colours!

Green

What is 50% of €54?

Amber

What is 20% of €54

Red

What is 11% of €54?

Green

What is 10% of €32?

Amber

What is 60% of €32

Red

What is 45% of €32?

Green

What is 25% of €14?

Amber

What is 40% of €14?

Red

What is 98% of €14?

**Percentages as fractions and decimals:**

A **Percent** can also be expressed as a **Decimal** or a **Fraction**



**A Half** can be written...

As a percentage: **50%**

As a decimal: **0.5**

As a fraction:  **$\frac{1}{2}$**

Look at this grid below to see how fractions, decimals and percentages are linked:

Percentage	Decimal	Fraction
50%	0.5	$\frac{1}{2}$
25%	0.25	$\frac{1}{4}$
75%	0.75	$\frac{3}{4}$

Now complete this grid:

Percentage	Decimal	Fraction
10%	0. ____	$\frac{1}{10}$
20%	0.20	_____
60%	0. ____	_____
_____	1	1
35%	_____	$\frac{35}{100}$
	0.99	$\frac{99}{100}$

**Solving problems involving percentages:**

1.

Lily reads 25% of her book.

She says "I have  $\frac{3}{4}$  left to read."

Is she correct? Explain why.

2.

Blake is working out how much he can spend on his Dad's present. He wants to spend 60% on a camera and  $\frac{5}{10}$  of the money on a t shirt.

Can he do this?

Explain why.

3.

**Shopping Trip**

Harry and Gail went shopping.

Harry spent 20% of his money and was left with £20.

Gail spent 50% of her money and was left with £15.

Which of the two had most money in the first place?

