



Percentages

- Converting between percentages and fractions
- Converting between percentages and decimals
- Finding percentages of quantities

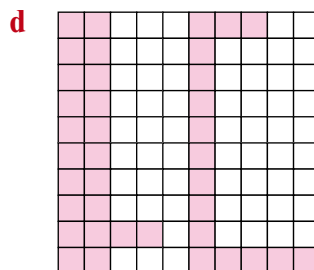
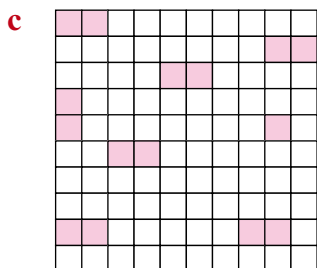
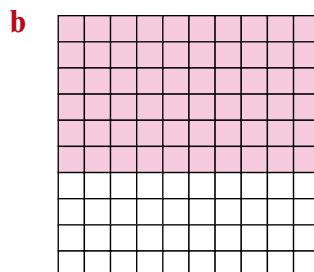
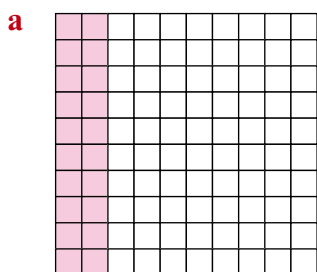
Keywords

You should know

explanation 1a

explanation 1b

1 What percentage of each square is shaded?



e Use a 10 by 10 grid to shade in your initial.

What percentage of the grid is covered by your initial?

2 Shade each percentage on a 10 by 10 grid.

a 90%

b 45%

c 12%

3 Write each percentage as a fraction.

a 37%

b 43%

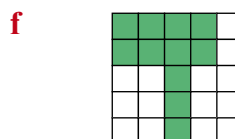
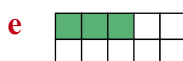
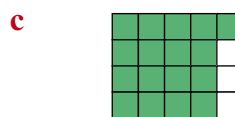
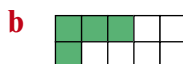
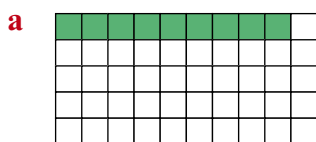
c 89%

d 21%

e 7%

f 73%

4 What percentage of each shape is shaded?



explanation 2a

explanation 2b

5 Write each percentage as a fraction in its lowest terms.

a 25%

b 60%

c 45%

d 75%

e 28%

f 14%

g 44%

h 15%

6 Write each fraction as a percentage.

a $\frac{9}{100}$

b $\frac{19}{100}$

c $\frac{29}{100}$

d $\frac{7}{50}$

e $\frac{47}{50}$

f $\frac{7}{20}$

g $\frac{3}{20}$

h $\frac{4}{5}$

i $\frac{9}{10}$

j $\frac{3}{10}$

k $\frac{3}{25}$

l $\frac{19}{25}$

m $\frac{45}{50}$

n $\frac{20}{20}$

o $\frac{7}{10}$

p $\frac{3}{5}$

7 Hank records his test scores for his year 8 exams in this table.

Subject	Maths	English	Science	History	French
Score	23	16	17	130	8
Number of marks on test	50	25	20	200	10
Percentage	46%	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Work out the missing percentages. Write his test results in order, starting with the lowest score.

explanation 3

8 Write each percentage as a decimal.

a 25%

b 24%

c 72%

d 62%

e 98%

f 45%

g 3%

h 12.5%

i 37.5%

9 Write each decimal as a percentage.

a 0.69

b 0.12

c 0.05

d 0.39

e 0.485

f 0.027

g 1.64

h 3.51

i 2.05

10 Copy and complete the table. You can use your answers to the previous questions to help you.

Fraction	Decimal	Percentage
$\frac{1}{4}$		
	0.5	
		20%
$\frac{2}{5}$		
	0.8	
		75%
$\frac{9}{10}$		
	0.3	
$\frac{1}{8}$		
$\frac{3}{20}$		
		45%

- 11** Molly asked 60 pupils in her year to name their favourite flavour of crisp. Her results are in the table.

Plain	Cheese and onion	Salt and vinegar	BBQ	Prawn cocktail
3	15	9	21	12

- a** 21 out of the 60 pupils chose BBQ flavour.

This can be written as a fraction, $\frac{21}{60} = \frac{7}{20}$.

What fraction of the group chose each of the other flavours?

- b** What percentage of the group chose each flavour?



explanation 4a

explanation 4b

Use a calculator for the following questions. Do not use the % key.

- 12** Work out each amount by first changing the percentage to a decimal.

- | | | | |
|--------------------|--------------------|--------------------|--------------------|
| a 14% of 36 | b 15% of 24 | c 21% of 18 | d 33% of 12 |
| e 35% of 40 | f 48% of 9 | g 75% of 42 | h 8% of 96 |
| i 40% of 32 | j 64% of 10 | k 18% of 15 | l 55% of 3 |

- 13** Find these amounts.

- | | | |
|------------------------|-------------------------|------------------------|
| a 37% of 84 kg | b 52% of 48 cm | c 18% of £72 |
| d 44% of 92 m | e 2.9% of 51 km | f 12.5% of 68 g |
| g 32.6% of 28 m | h 18.7% of 55 km | i 120% of £32 |
| j 105% of 47 kg | k 2.5% of 576 cm | l 6.9% of £120 |

- 14** Work out each amount.

- | | | |
|---------------------|-----------------------|-----------------------|
| a 46% of £95 | b 24% of £70 | c 35% of £52 |
| d 82% of £48 | e 17.5% of £64 | f 51.7% of £70 |

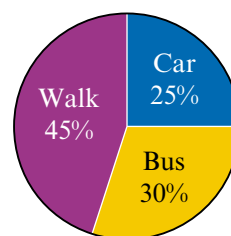
- 15** Peter puts £200 into a bank account which pays 4% interest a year. How much interest will he receive after one year?



- 16** Suzie put £150 into her bank account. The interest is 5% a year. How much interest will she get after one year?

- 17** The pie chart shows how 120 pupils in a year group travel to school.

- a** How many pupils travel by car?
b How many pupils walk to school?



explanation 5

- 18** Use your calculator to work out these percentages.

- | | |
|------------------------------------|------------------------------------|
| a 45 as a percentage of 60 | b 15 as a percentage of 75 |
| c 32 as a percentage of 128 | d 23 as a percentage of 115 |
| e 28 as a percentage of 80 | f 27 as a percentage of 75 |

- 19** The human body consists of 206 bones.

There are 26 bones in each foot.

What percentage of the bones in the human skeleton are in the feet?



- 20 a** There is 12 g of fat in each 40 g chocolate bar. What percentage of the bar is fat?
b There is 2 g of protein in each 40 g chocolate bar. What percentage of the bar is protein?

- 21** Peter receives £80 for his birthday. He saves £50 and spends the rest on DVDs. What percentage did he save?