Converting between fractions, decimals and percentages.

1.Without a calculator:

0.35 $= \frac{35}{100} = \frac{7}{20}$ $= 35\%$

$\frac{2}{5} = \frac{4}{10} = \frac{40}{100}$ $= 0.4$ $= 40\%$

8% $= \frac{8}{100} = \frac{2}{25}$ $= 0.08$

Examples:

Without a calculator find the fraction, decimal and percentage equivalents.

1) $\frac{4}{5} = \frac{8}{10} = \frac{80}{100} = 80\% = 0.8$

2) 75% $= \frac{75}{100} = 0.75 = \frac{3}{4}$

3) 0.7 $= \frac{7}{10} = \frac{70}{100} = 70\%$

2. With a calculator:

$\frac{3}{8} = 3 \div 8 = 0.375 = 37.5\%$ (×100)

a) $\frac{2}{7} = 0.2857\ldots = 29\%$

b) $\frac{9}{11} = 0.8\dot{1} = 82\%$

c) $\frac{16}{49} = 0.33 = 33\%$

Write these percentages as fractions:

$59\% = \frac{59}{100}$

$91.7\% = \frac{91.7}{100} = \frac{917}{1000}$

$8.3\% = \frac{8.3}{100} = \frac{83}{1000}$

$60\% = \frac{60}{100} = \frac{6}{10} = \frac{3}{5}$

$7\% = \frac{7}{100}$

$20\% = \frac{20}{100} = \frac{2}{10} = \frac{1}{5}$

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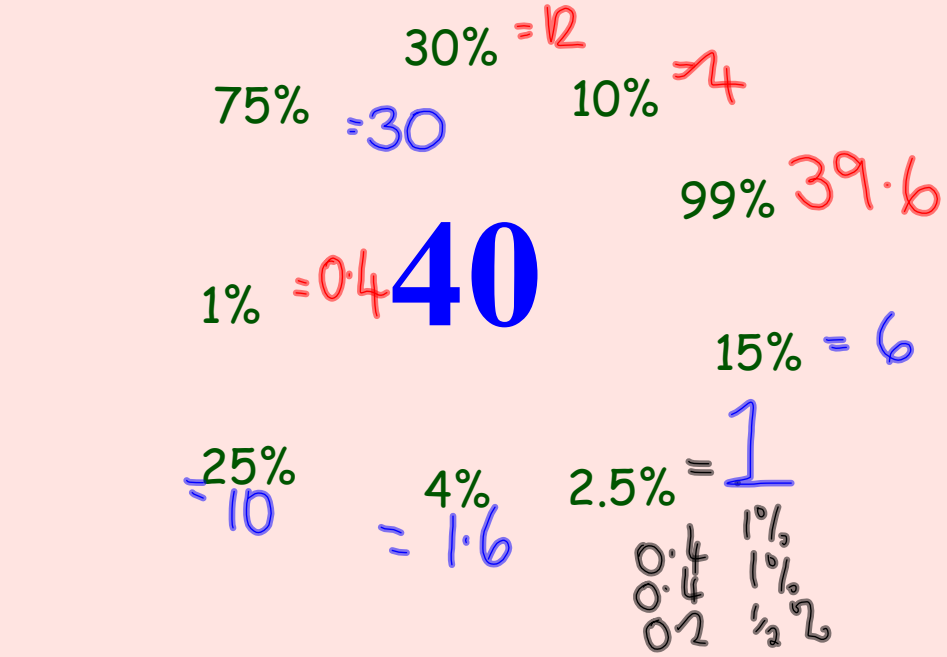
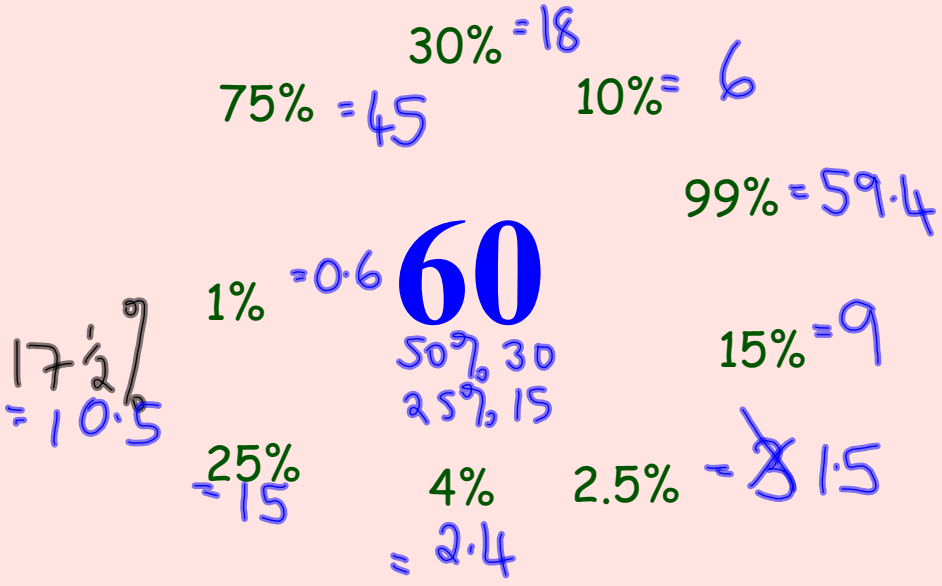
Match the bargains

Finding a percentage of an amount.

without a calculator!





£ 8.20

Here's a recipe for muesli squares.

MUESLI SQUARES

Makes 15

75 g butter
30 ml golden syrup
45 g soft brown sugar
165 g muesli
45 g glacé cherries
105 g plain chocolate, melted

Sugar = 9.7%

465

What percentage of the bake is:

a) butter $\frac{75}{465} = 0.1612... = 16.1\%$

b) golden syrup $\frac{30}{465} = 0.0645 = 6.8\%$

c) sugar $\frac{45}{465}$

d) muesli $\frac{165}{465} = 0.354 = 35.5\%$

e) cherries 9.7

Changing Fractions to Percentages

Janet and John both came home with test results.

Janet had 8/10 for Maths and John had 18/23 for English.

Their parents gave John a bag of sweets for getting 18 but made ~~Karen~~ Janet do extra homework for getting only 8.

How fair is that?

$\frac{8}{10} = 80\%$

$78.3\% = \frac{18}{23}$

Janet had a score of 80%, so it was unfair

One number as a percentage of another

page 109 C1-C5

Homework for Friday

Page 115 Test yourself

Finding a percentage of an amount using a calculator.

Find 17% of 65 $\frac{17}{100} \times 65$

$= 0.17 \times 65$

$= 11.05$

Find 43% of 16 $= 6.88$

Page 111 E1-6

Increase/decrease by a percentage

Increase £62 by 10%

method 1

Find 10% of 62

add it on to 62

10% of 62 = 6.2

62.0 + 6.2 = 68.2

method 2

$\frac{110}{100} \times 62$

$= 1.10 \times 62$

$= 68.2$

Increase £62 by 14%

method 1

Find 14% of 62

$0.14 \times 62 = 8.68$

$62 + 8.68 = 70.68$

method 2

$\frac{114}{100} \times 62$

$= 70.68$

~~Decrease~~ £62 by 10%

method 1

10% of 62 = 6.20

62 − 6.20 = 55.80

£55.80

method 2

$\frac{90}{100} \times 62$

£55.80

Decrease £62 by 17%

method 1

$\frac{17}{100} \times 62 = 10.54$

$62 - 10.54 = 51.46$

method 2

$\frac{83}{100} \times 62 = £51.46$

page 383 odds only,
page 384/385 odds only

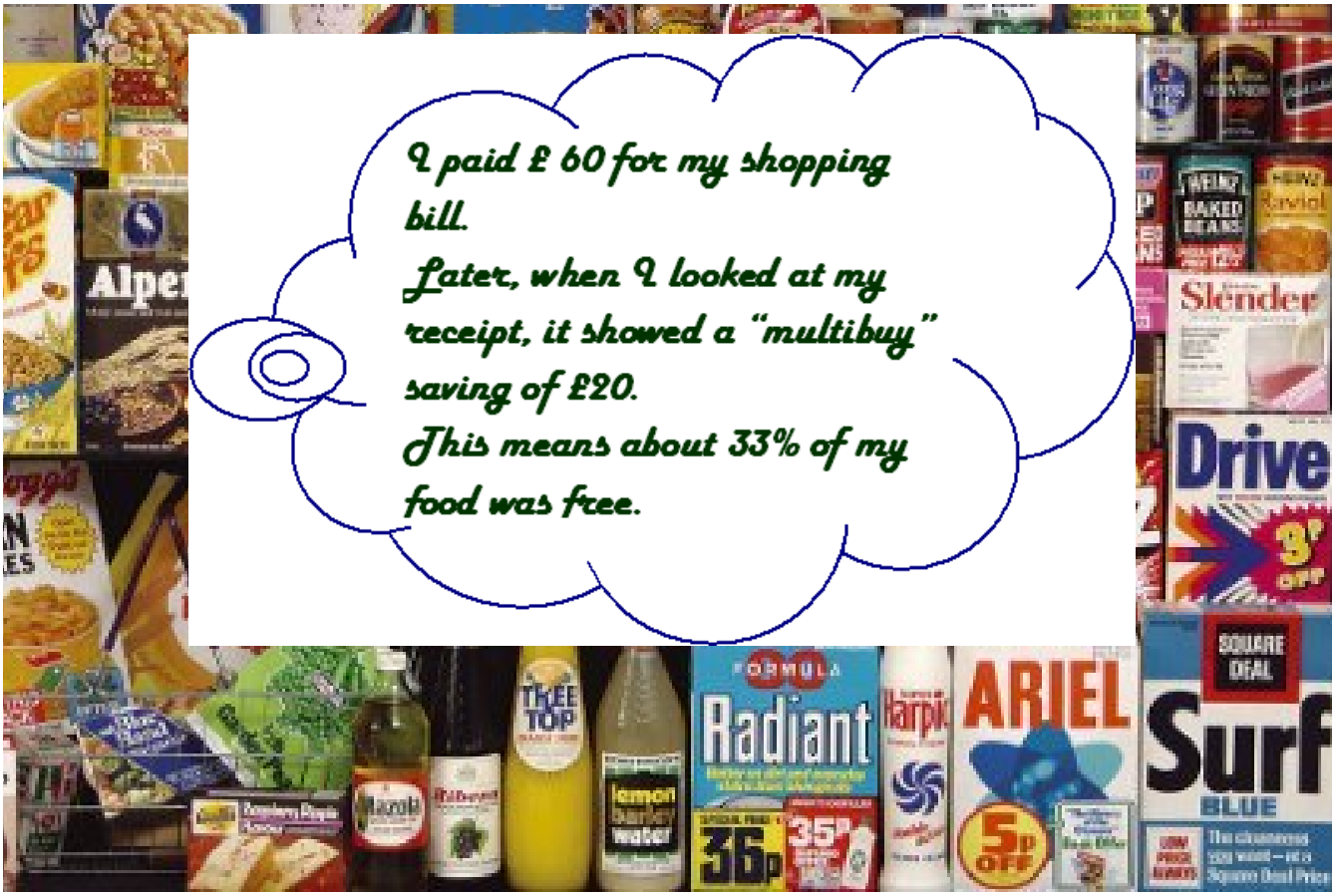
B1, B3, B5 NO CALC

Finding a percentage increase.

In the past 5 years Mabel's weight has increased. She used to weigh 25kg.
Now she weighs 30kg.
What is the percentage increase?

$\frac{5}{25} \times 100 = 20\%$

By what percentage is taller than ?



% age increase $= \frac{\text{actual increase}}{\text{original}} \times 100$

E1) $\frac{20}{250} \times 100 = 8\%$

E3) $\frac{120}{400} \times 100 = 30\%$

Finding a percentage decrease.

Was £5.00

now £3.50

What is the percentage saving?

Suppose a miracle happened and Mabel lost that extra 5kg and returned to her slim 25kg.
What would be the percentage decrease in her weight?

Percentage decrease = $\frac{\text{Actual decrease}}{\text{original}} \times 100$

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page 388 odds only

p388

The sales

I got a great bargain in the sales. This bag was £15.00 last week. Today it was reduced to £5.00.

$\frac{10}{15} = 66.6\%$

$\frac{20}{50} = 40\%$

Well, what do you think of this…I spent £30.00 on these trousers and they were priced at £50.00. That's an even better bargain.

Successive percentage changes

I invest £100 in a bank for 3 years at a rate of 6% interest.
After 3 years I have £118.

True or false?

Explain your answer.

After 1 year: £106

2nd yr: 106% × 106 = 112.36

3rd yr: $\frac{106}{100} \times 112.36$ £119.10

Compound interest means receiving (or paying) interest on the interest.

Questions C1 and C2.

Suppose you were to invest £100 at 5% per annum find out how much you would get after 2,3,4..years and then 20 years.

Year	Balance
	£
1	105% of 100 = 105
2	105% of 105 = 110.25
3	105% of 110.25 = 115.76
4	
	£265.00
20	

Questions C3-C5

Save

I calculated my interest on savings to be

150 x 1.06 x 1.06 x 1.06

Buying or borrowing?

You want to buy a car.
It costs £4000.
You can buy now and borrow at 20% per year,
or,
you can save earning 6% per year.

You have £150 to put aside per month for the car.
Work out how long you will spend buying the car.

year	saved	+interest
1	£1800 : 12×150	$\frac{106}{100} \times 1800 = 1908$
2	1908 + 1800 = 3708	$\frac{106}{100} \times 3708 = 3930.4$

I will need to save for 2 years and 1 month

Borrow	plus interest		payback	Balance
1 4000	4800	800	- 1800	3000
2 3000	3600	600	-1800	1800
3 1800	2160	360	-1800	360
4 360	432	72		

3 years + 3 months

Total pd back
5832

If you were Aunt Ethel's niece/nephew what would you choose?
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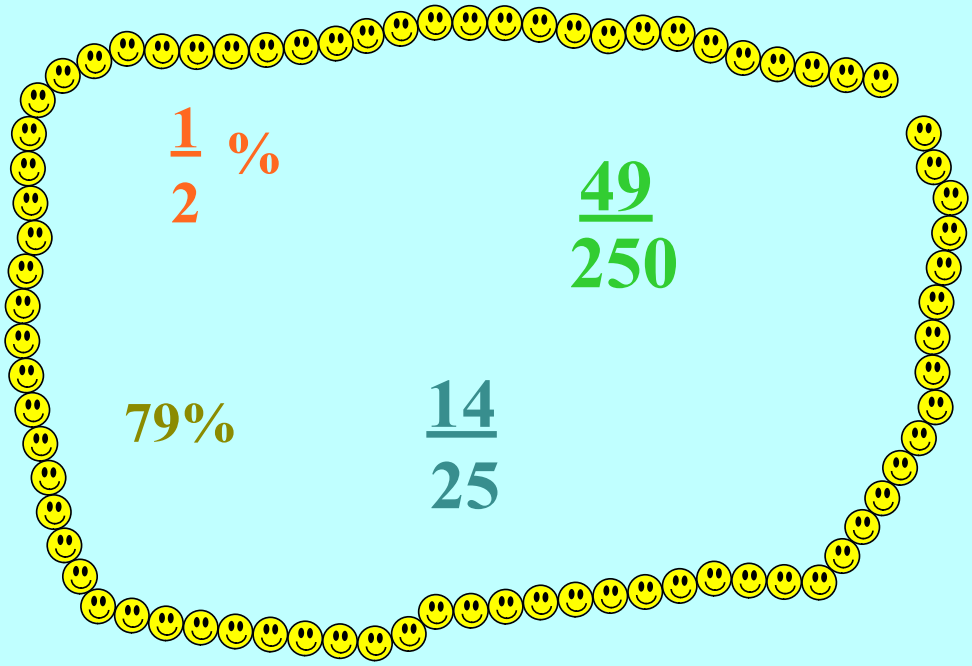
Without a calculator convert each of these to a decimal:



Food has gone up in price recently.
A family shop costs about £100.
If food prices have gone up by about 15% in the last year, how much would you have paid for a shop this time last year.

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Attachments

PERCEN~1.PPT

percentages in pieces.ppt