

Now Revise

Routine – Non
Calculator

Percentages

Applications 1.3

This year, Ben paid £260 for his car insurance.
This is an increase of 30% on last year's payment.
How much did Ben pay last year?

1

Cleano washing powder is on special offer.

2



Each box on special offer contains 20% more powder than the standard box.

A box on special offer contains 900 grams of powder.

How many grams of powder does the standard box contain?

Evaluate

$$\frac{2}{5} \div 1\frac{1}{10} .$$

3

4

Evaluate

$$4\frac{1}{3} - 1\frac{1}{2}.$$

5

Evaluate

$$3\frac{1}{6} \div 1\frac{2}{3}.$$

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6

There are 2.69 million vehicles in Scotland.

It is estimated that this number will increase at a rate of 4% each year.

If this estimate is correct, how many vehicles will there be in 3 years' time?

Give your answer **correct to 3 significant figures**.

Ian's annual salary is £28 400. His boss tells him that his salary will increase by 2.3% per annum.

What will Ian's annual salary be after 3 years?

Give your answer to the nearest pound.

7

The price for Paul's summer holiday is £894.40.

The price includes a 4% booking fee.

What is the price of his holiday without the booking fee?

8

A new book "Intermediate 2 Maths is Fun" was published in 2006.

There were 3000 sales of the book during that year.

Sales rose by 11% in 2007 then fell by 10% in 2008.

Were the sales in 2008 more or less than the sales in 2006?

You must give a reason for your answer.

9

A car is valued at £3780.

This is 16% less than last year's value.

What was the value of the car last year?

10

An industrial machine costs £176 500.

Its value depreciates by 4.25% each year.

How much is it worth after 3 years?

Give your answer correct to **three** significant figures.

11

12

Calculate the **compound interest** earned when £50 000 is invested for 4 years at 4.5% per annum.

Give your answer to the nearest penny.

13

It is estimated that house prices will increase at the rate of 3.15% per annum.

A house is valued at £134 750. If its value increases at the predicted rate, calculate its value after 3 years.

Give your answer correct to **four** significant figures.

14

Olga normally runs a total distance of 28 miles per week.

She decides to increase her distance by 10% a week for the next four weeks.

How many miles will she run in the fourth week?

15

It is estimated that an iceberg weighs 84 000 tonnes.

As the iceberg moves into warmer water, its weight decreases by 25% each day.

What will the iceberg weigh after 3 days in the warmer water?

Give your answer **correct to three significant figures**.

16

Mark takes some friends out for a meal.

The restaurant adds a 10% service charge to the price of the meal.

The **total** bill is £148.50.

What was the price of the meal?

17

Alistair buys an antique chair for £600.

It is expected to increase in value at the rate of 4.5% each year.

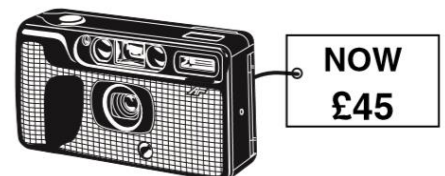
How much is it expected to be worth in 3 years?

18

In a sale, all cameras are reduced by 20%.

A camera now costs £45.

Calculate the **original** cost of the camera.



19

A local council recycles 42 000 tonnes of waste a year.

The council aims to increase the amount of waste recycled by 8% each year.

How much waste does it expect to recycle in 3 years time?

Give your answer **to three significant figures**.

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Unseen and
Non Routine

Percentages

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The ratio of sugar to fruit in a particular jam is 5 : 4.

It is decided to:

- **decrease** the sugar content by 20%
- **increase** the fruit content by 20%.

Calculate the new ratio of sugar to fruit.

Give your answer in its simplest form.

20

A company makes large bags of crisps which contain 90 grams of fat.

The company aims to reduce the fat content of the crisps by 50%.

They decide to reduce the fat content by 20% each year.

Will they have achieved their aim by the end of the 3rd year?

Justify your answer.

21

To make “14 carat” gold, copper and pure gold are mixed in the ratio 5:7.

A jeweller has 160 grams of copper and 245 grams of pure gold.

What is the maximum weight of “14 carat” gold that the jeweller can make?

22

A new fraction is obtained by adding x to the numerator and denominator of the fraction $\frac{17}{24}$.

This new fraction is equivalent to $\frac{2}{3}$.

Calculate the value of x .

23

24

Due to the threat of global warming, scientists recommended in 2010 that the emissions of greenhouse gases should be reduced by 50% by the year 2050.

The government decided to reduce the emissions of greenhouse gases by 15% **every ten years**, starting in the year 2010.



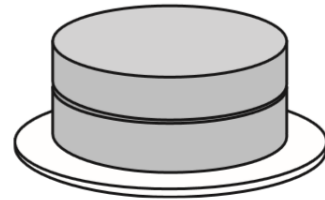
Will the scientists' recommendations have been achieved by 2050?

You must give a reason for your answer.

25

Jamie is going to bake cakes for a party.

He needs $\frac{2}{5}$ of a block of butter for 1 cake.



He has 7 blocks of butter.

How many cakes can Jamie bake?