

# Edexcel GCSE

## Mathematics (Linear) – 1MA0

# PERCENTAGES

### Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.  
Tracing paper may be used.

### Items included with question papers

Nil



### Instructions

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Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

### Information

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The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk (\*)** are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

### Advice

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Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1. Wayne bought an engagement ring for Tracy.  
The total cost of the ring was £420 plus VAT at  $17\frac{1}{2}\%$ .



- (a) Work out the cost of the ring.

$$17.5\% \text{ of } 420$$

$$\frac{17.5}{100} \times 420 = 73.50$$

$$\pounds 493.50 \dots\dots$$

(2)

Wayne invited 96 people to an engagement party.  
Only 60 of the people invited came to the party.

- (b) Express 60 as a percentage of 96.

$$\frac{60}{96} \times 100$$

$$\dots\dots 62.5 \dots\dots \%$$

(2)

(Total 4 marks)

2. A doctor has 12 000 patients.  
4560 of these patients are male.

What percentage of these patients are **female**?

$$\begin{array}{r} 12000 \\ - 4560 \\ \hline 7440 \end{array}$$

$$\frac{7440}{12000} \times 100$$

$$= 62\%$$

$$\dots\dots 62 \dots\dots \%$$

(3)

(Total 3 marks)

3. Martin had to buy some cleaning materials.  $\frac{1}{2}$   
The cost of the cleaning materials was £64.00 plus VAT at  $17\frac{1}{2}\%$ .

Work out the total cost of the cleaning materials.

$$17\frac{1}{2}\% \text{ of } 64$$

$$\frac{17.5}{100} \times 64 = 11.20$$

£ 75.20  
(Total 2 marks)

4. There are 800 students at Prestfield School.  
45% of these 800 students are girls.

- (a) Work out 45% of 800

$$\frac{45}{100} \times 800 = 360$$

360

(2)

There are 176 students in Year 10.

- (b) Write 176 out of 800 as a percentage.

$$\frac{176}{800} \times 100 = 22$$

22 %

(2)

(Total 4 marks)

5. Alistair sells books.

He sells each book for £7.60 plus VAT at  $17\frac{1}{2}\%$ .

He sells 1650 books.

Work out how much money Alistair receives.

$$17.5\% \text{ of } 7.60$$

$$\frac{17.5}{100} \times 7.60 = 1.33$$

Each book £8.93

$$\text{Total } 8.93 \times 1650$$

$$\text{£} \dots 14,734.50$$

(Total 4 marks)

6. A hotel has 56 guests.  
35 of the guests are male.

- (a) Work out 35 out of 56 as a percentage.

$$\frac{35}{56} \times 100 = 62.5$$

$$\dots 62.5 \dots \%$$

(2)

40% of the 35 male guests wear glasses. (14)

- (b) Write the number of male guests who wear glasses as a fraction of the 56 guests.  
Give your answer in its simplest form.

$$\frac{40}{56} \times 35 = 14$$

$$\frac{14}{56} = \frac{2}{8} = \frac{1}{4}$$

$$\dots \frac{1}{4} \dots$$

(4)

(Total 6 marks)

7. The cost of a compact disc holder is 25p.  
John has £15 to spend.

(a) What is the greatest number of compact disc holders that John can buy for £15?

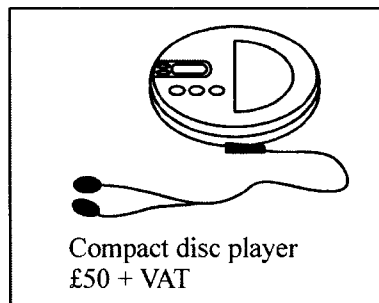
$$\frac{1500}{25} = 60$$

.....  
60

(3)

A compact disc player costs £50 plus 17½% VAT.

(b) Calculate the total cost of the compact disc player.



$$17.5\% \text{ of } 50 = 8.75$$

$$\begin{array}{r} \text{TOTAL} \quad 50.00 \\ \quad \quad \quad 8.75 \\ \hline 58.75 \end{array}$$

£ .....  
58.75

(3)

(Total 6 marks)

8. Work out 28% of £85 000

$$\frac{28}{100} \times 85000 = 23800$$

£ .....  
23,800

(Total 2 marks)

9. Work out 45% of 800

$$\frac{45}{100} \times 800 = 360$$

.....  
360

(Total 2 marks)

10. Bytes is a shop that sells computers and digital cameras.

In 2003, Bytes sold 620 computers.

In 2004, Bytes sold 708 computers.

Work out the percentage increase in the number of computers sold.

Give your answer to an appropriate degree of accuracy.

$$\frac{\text{Diff}}{\text{Orig.}} = \frac{58}{620} \times 100 = 14.1935$$
$$= 14.2$$

.....%

(4)

11. Calculate 36% of £4500

$$\frac{36}{100} \times 4500$$

£ 1620 .....

(Total 2 marks)

12. In April 2004, the population of the European Community was 376 million.

In April 2005, the population of the European Community was 451 million.

Work out the percentage increase in population.

Give your answer correct to 1 decimal place.

$$\frac{\text{Diff}}{\text{Orig}} = \frac{75}{376} \times 100$$
$$= 19.9468$$

.....19.9.....%

(Total 3 marks)

13. The cost of a radio is the list price plus VAT at  $17\frac{1}{2}\%$ .

The list price of a radio is £240

Work out the cost of the radio.

$$17.5\% \text{ of } 240 = 42$$

$$\frac{17.5}{100} \times 240$$

£ 282.....

(Total 3 marks)

14. Linda's mark in a maths test was 36 out of 50

Find 36 out of 50 as a percentage.

$$\frac{36}{50} \times 100$$

..... 72 %

(Total 2 marks)

15. Ann buys a dress in a sale.  
The normal price of the dress is reduced by 20%.  
The normal price is £36.80

Work out the sale price of the dress.

$$36.80 - 20\%$$

$$\frac{20}{100} \times 36.80 = 7.36$$

$$36.80 -$$

$$\frac{7.36}{\quad}$$

$$29.44$$

£ 29.44.....

(Total 3 marks)

16. William's salary is £24 000  
His salary increases by 4%.

Work out William's new salary.

$$4\% \text{ of } 24000$$

$$\frac{4}{100} \times 24000 = 960$$

£ 24960

(Total 3 marks)

17. The table shows the number of mobile phones sold in a shop in April and in May.

April	May
85	91

Work out the percentage increase in the number of mobile phones sold from April to May.

Give your answer correct to 3 significant figures.

$$\frac{\text{Diff}}{\text{orig}} = \frac{6}{85} \times 100$$

$$= 7.0588$$

$$\approx 7.06$$

7.06 %

(Total 3 marks)