Centre No.						Paper Reference							Surname	Initial(s)
Candidate No.						5	5	2	3	/	0	4	Signature	

Paper Reference(s)

5523/04

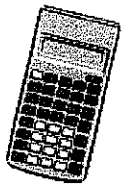
Examiner's use only

Team Leader's use only

Edexcel GCSE

Mathematics A – 1387

Paper 4 (Calculator)



Intermediate Tier

Friday 11 November 2005 – Morning

Time: 2 hours

Materials required for examination
Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer **ALL** the questions in the spaces provided in this question paper.
You must NOT write on the formulae page. Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 21 questions in this question paper. The total mark for this paper is 100.
There are 20 pages in this question paper. Any blank pages are indicated.
Calculators may be used.
If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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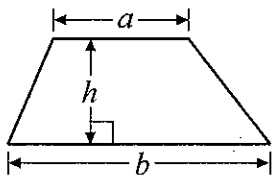
edexcel

GCSE Mathematics 1387/8

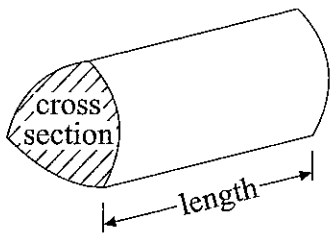
Formulae: Intermediate Tier

You must not write on this formulae page.
Anything you write on this formulae page will gain NO credit.

Area of trapezium = $\frac{1}{2}(a+b)h$



Volume of prism = area of cross section × length



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Answer ALL TWENTY ONE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1. 56 students were asked if they watched tennis yesterday.
20 of the students are boys.
17 girls watched tennis.
13 boys did not watch tennis.

(a) Use this information to complete the two way table.

	Boys	**Girls**	**Total**
Watched tennis			
Did not watch tennis			
Total			

(3)

One of these students is to be chosen at random.

(b) Write down the probability that the student chosen is a boy.

.....

(2)

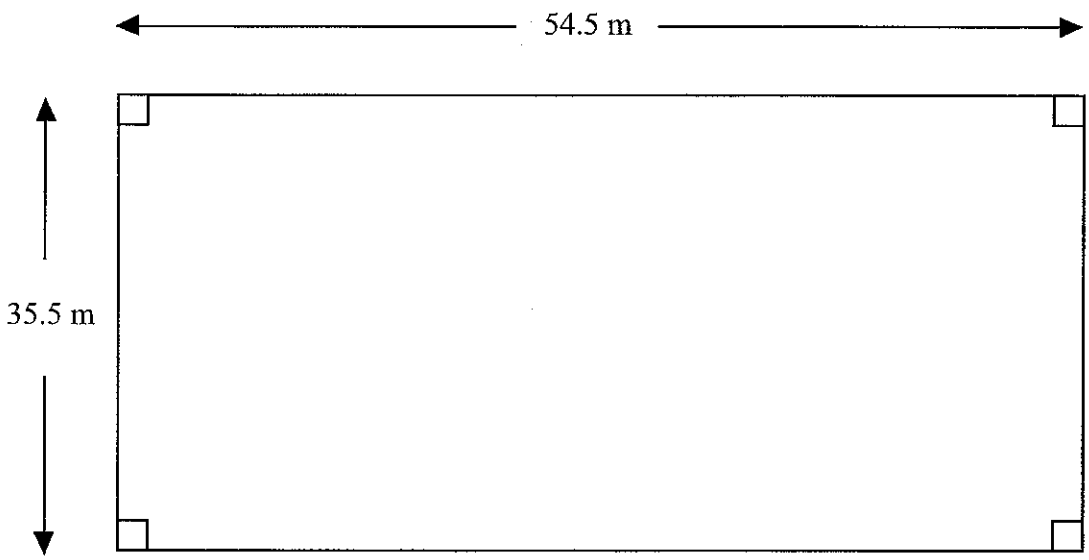
Q1

(Total 5 marks)

Leave blank

2. The diagram shows a rectangular field.

Diagram **NOT** accurately drawn



The length of the field is 54.5 m.
The width of the field is 35.5 m.

The field is for sale.
Mrs Fox wants to buy the field.
She also wants to plant a hedge along the perimeter.

The field costs £11.44 per square metre.
Each metre length of hedge costs £4.81

Mrs Fox has £23 000

Has Mrs Fox enough money to buy the field and plant the hedge?

You must show the working you use to make your decision.

Q2

(Total 6 marks)

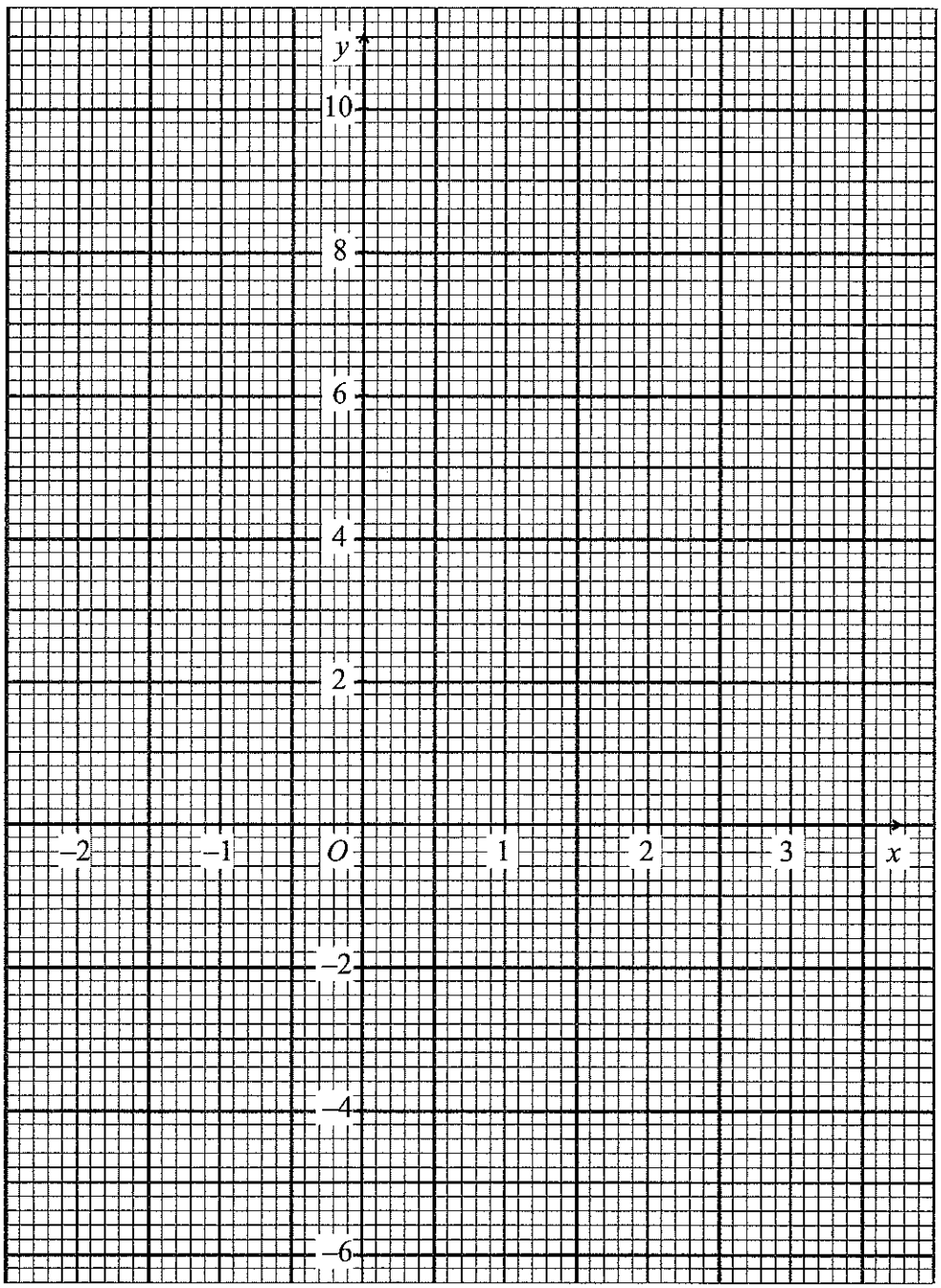
Leave blank

3. (a) Complete the table of values for $y = 3x + 1$

x	–2	–1	0	1	2	3
y	–5		1			

(2)

(b) On the grid, draw the graph of $y = 3x + 1$



(2)

(c) Use your graph to find

(i) the value of y when $x = -0.8$

$y =$ .....

(ii) the value of x when $y = 8.2$

$x =$ .....

(2)

(Total 6 marks)

Q3

Turn over

Leave blank

4. Jenny worked in a bookshop for two weeks.

She is paid £125 per week **plus** 10% of the total value of the books she sells that week.

In the first week, she sold books with a total value of £800.

(a) Work out the total amount she was paid in the first week.

£ .....

(3)

In the second week, Jenny was paid a total of £225

(b) Work out the total value of the books she sold in the second week.

£ .....

(3)

(Total 6 marks)

Q4

5. (a) Solve $4x - 1 = 7$

$x =$ .....

(2)

(b) Solve $5(2y + 3) = 20$

$y =$ .....

(3)

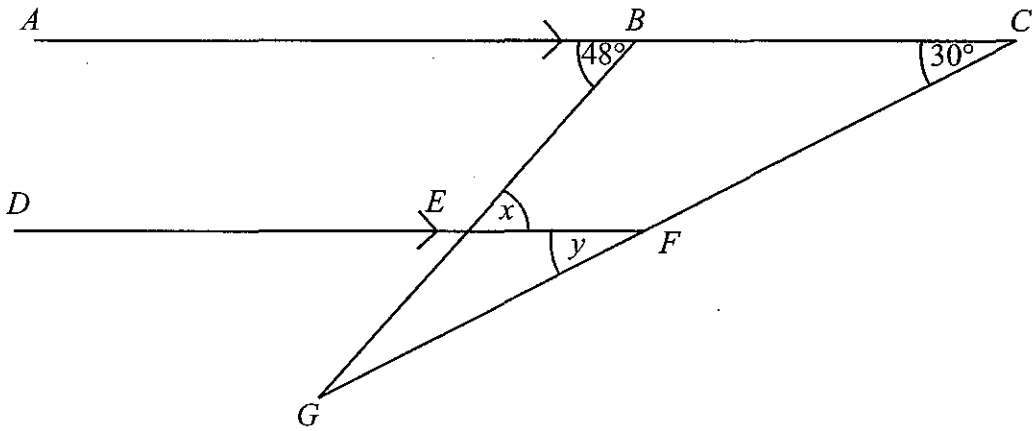
(Total 5 marks)

Q5

Leave blank

6.

Diagram **NOT** accurately drawn



BEG and *CFG* are straight lines.
ABC is parallel to *DEF*.
Angle *ABE* = 48°.
Angle *BCF* = 30°.

(a) (i) Write down the size of the angle marked *x*.

$x =$ .....°

(ii) Give a reason for your answer.

.....

(2)

(b) (i) Write down the size of the angle marked *y*.

$y =$ .....°

(ii) Give a reason for your answer.

.....

(2) **Q6**

(Total 4 marks)

Leave blank

7. A doctor has 12 000 patients.

4560 of these patients are male.

(a) What percentage of these patients are **female**?

..... %
(3)

Here is the age, in years, of each of the first twenty patients the doctor saw yesterday.

5	20	13	19	27	32	39	26	39	45
56	47	59	52	28	21	10	36	7	27

(b) In the space below, draw a stem and leaf diagram to show these ages.

(3) **Q7**

(Total 6 marks)

Leave blank

8. Sangita is on holiday in Switzerland.
She buys a train ticket.

She can pay either 100 Swiss Francs or 70 Euros.

£1 = 2.10 Swiss Francs
£1 = 1.40 Euros

She pays in Swiss Francs rather than Euros.
Work out how much she saves.
Give your answer in pounds.

£ .....

Q8

(Total 4 marks)

9. Petros wants to find out how teenagers communicate with each other.
He designs a questionnaire.
Here are two of his questions.
The questions are **not** suitable.
For each question, write down a reason why.

(i) Do you prefer to communicate with your best friend by mobile phone or by e-mail?

Yes ☐ No ☐

Reason .....

.....

(ii) How many e-mail addresses do you have?

1 ☐ 2 ☐ 3 ☐ 4 ☐

Reason .....

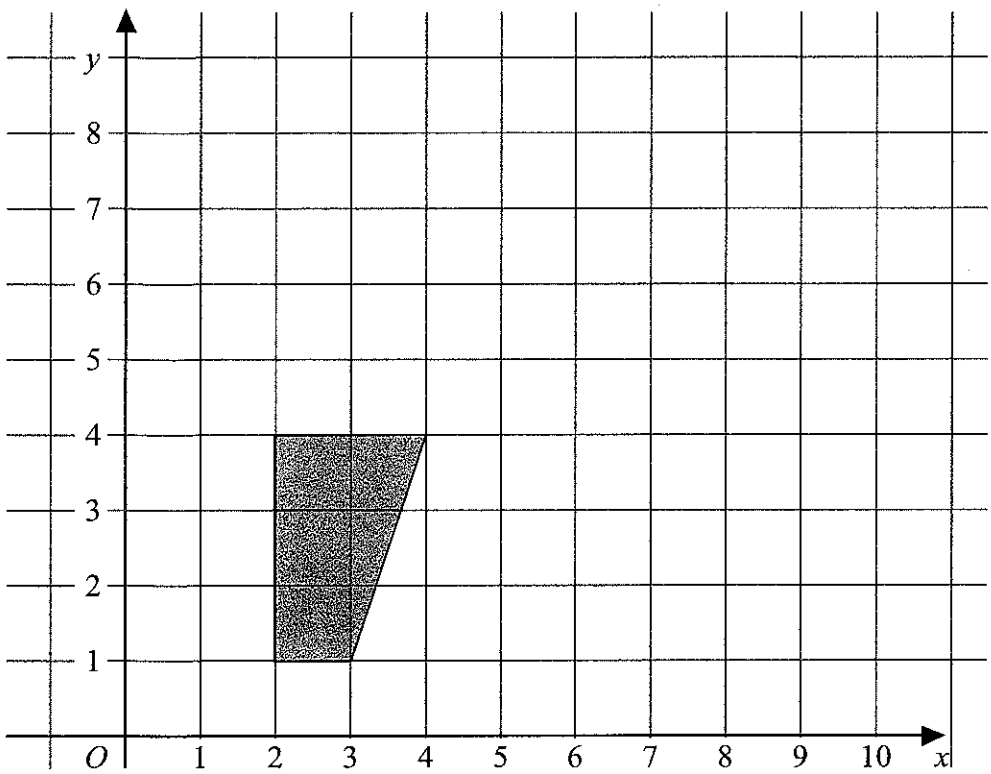
.....

Q9

(Total 2 marks)

Leave blank

10.



On the grid, enlarge the shaded shape by scale factor of 2, centre (1,1).

(Total 3 marks)

Q10

11. The diagram shows a trapezium of height 3 m.

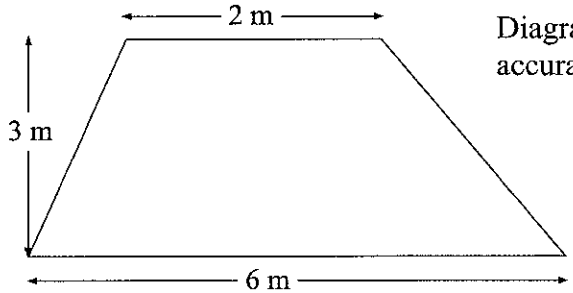


Diagram **NOT** accurately drawn

Find the area of this trapezium.

State the units with your answer.

.....

(Total 3 marks)

Q11

Leave blank

12. (a) Use your calculator to work out the value of $\dfrac{8.95+\sqrt{7.84}}{2.03\times1.49}$

Write down all the figures on your calculator display.

.....

(2)

(b) Write down your answer to part (a) correct to 3 significant figures.

.....

(1) **Q12**

(Total 3 marks)

13. The equation $x^3+10x=21$
has a solution between 1 and 2

Use a trial and improvement method to find this solution.
Give your answer correct to one decimal place.
You must show **ALL** your working.

$x =$ **Q13**

(Total 4 marks)

Leave blank

14. Ann, Bill and Colin are travelling in a car from Glasgow to Poole.
Ann, Bill and Colin share the driving so that the distances they drive are in the ratio 3:4:4
Ann drives a distance of 210 km.

(a) Calculate the total distance they travelled from Glasgow to Poole.

..... km
(3)

Ann drives the 210 km in 2 hours 40 minutes.

(b) Work out Ann's average speed.

..... km/h
(3)

Colin's case weighs 7 kg correct to the nearest kg.

(c) (i) Write down the greatest possible weight of Colin's case.

..... kg

(ii) Write down the least possible weight of Colin's case.

..... kg
(2)

(Total 8 marks)

Q14

Leave blank

15. Fred did a survey on the areas of pictures in a newspaper.
The table gives information about the areas.

Area (A cm^2)	Frequency
$0 < A \leqslant 10$	38
$10 < A \leqslant 25$	36
$25 < A \leqslant 40$	30
$40 < A \leqslant 60$	46

Work out an estimate for the mean area of a picture.

..... cm^2

Q15

(Total 4 marks)

Leave blank

16.

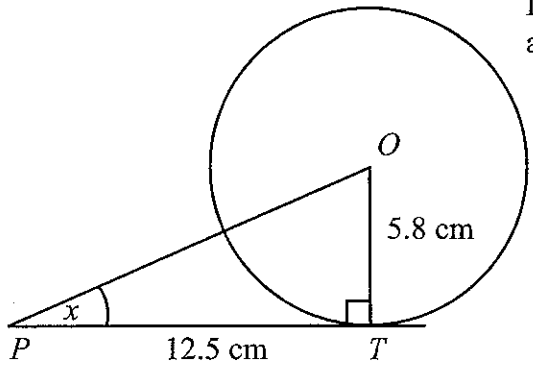


Diagram **NOT** accurately drawn

In the diagram, T is a point on a circle, centre O.
PT is the tangent to the circle at T.

(a) Angle OTP is a right angle.
Give a reason why.

.....

(1)

The radius of the circle is 5.8 cm.
$PT = 12.5$ cm.

(b) Calculate the size of angle x.
Give your answer correct to 1 decimal place.

$x =$ .....°

(3)

C is the point on the circle where the straight line OP crosses the circle.

(c) Calculate the length of PC.
Give your answer correct to 3 significant figures.

..... cm

(4)

(Total 8 marks)

Q16

Leave blank

17. (a) $4x + 3y < 12$

x and y are both integers.

Write down two possible pairs of values that satisfy this inequality.

$x =$ ..... , $y =$ .....

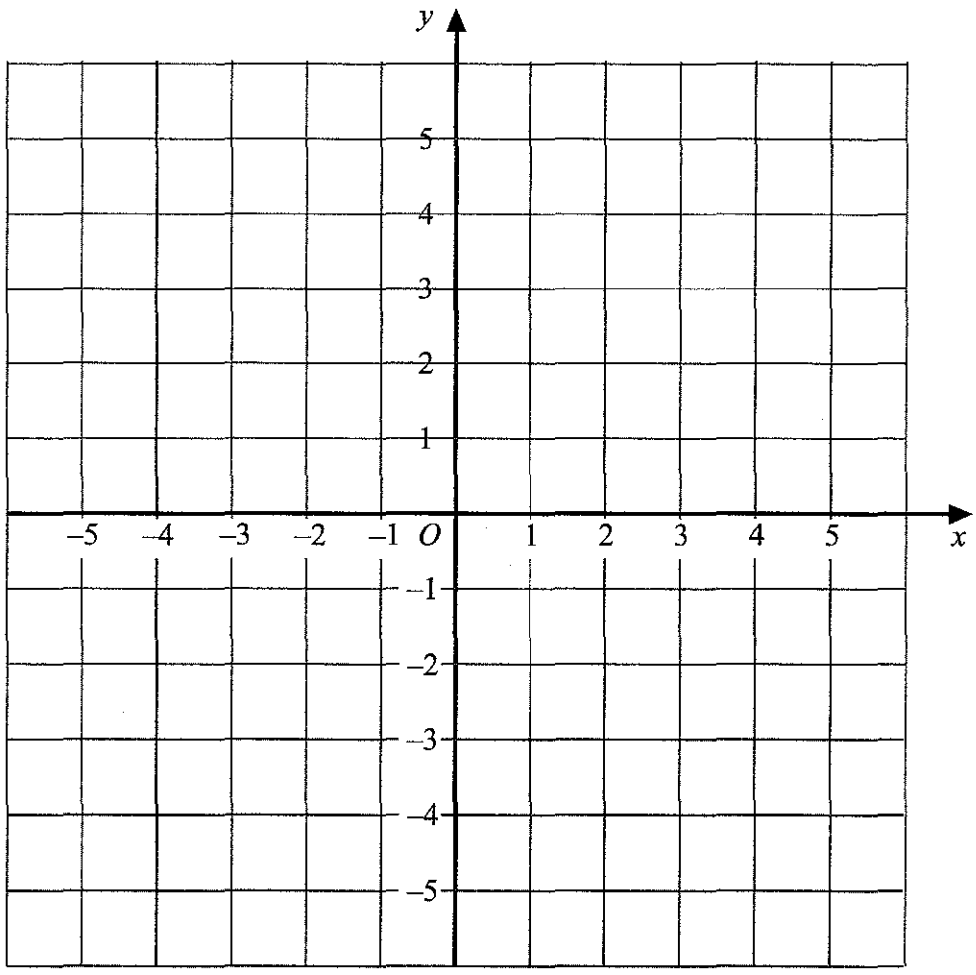
and $x =$ ..... , $y =$ .....

(2)

(b) $4x + 3y < 12$, $y < 3x$, $y > 0$, $x > 0$

x and y are both integers.

On the grid, mark with a cross (×), each of the **three** points which satisfy **all** these four inequalities.



(3)

Q17

(Total 5 marks)

Turn over

Leave blank

18.

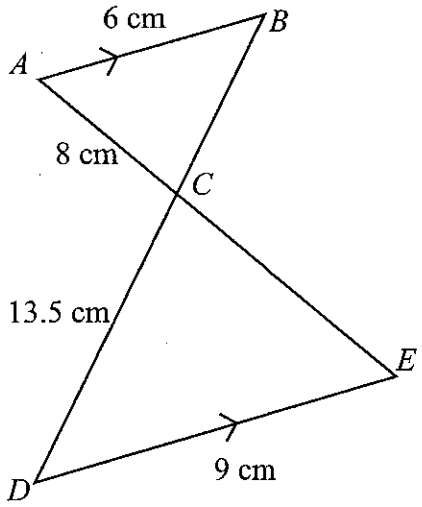


Diagram **NOT** accurately drawn

AB is parallel to *DE*.
ACE and *BCD* are straight lines.
AB = 6 cm,
AC = 8 cm,
CD = 13.5 cm,
DE = 9 cm.

(i) Work out the length of *CE*.

..... cm

(ii) Work out the length of *BC*.

..... cm

Q18

(Total 3 marks)

Leave blank

19. Solve the simultaneous equations

$$3x + 7y = 26$$
$$4x + 5y = 13$$

$x =$ .....

$y =$ .....

Q19

(Total 4 marks)

Leave blank

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

In 2003, Bytes sold 620 computers.
In 2004, Bytes sold 708 computers.

(a) Work out the percentage increase in the number of computers sold.
Give your answer to an appropriate degree of accuracy.

..... %
(4)

In a sale, normal prices are reduced by 14 %.

The sale price of a digital camera is £129.86

(b) Work out the normal price of the digital camera.

£ .....
(3)

The table shows the number of digital cameras Bytes sold each month in the first six months of 2005.

Month	January	February	March	April	May	June
Number of digital cameras sold	30	19	20	15	27	39

The first 3-month moving average for this data is 23

(c) Work out the **second** 3-month moving average for this data.

.....
(2)

(Total 9 marks)

Q20

Leave blank

21. Lisa said that -2 is the **only** value of x that satisfies the equation $x^2 + 4x + 4 = 0$

Was Lisa correct?
Show working to justify your answer.

Q21

(Total 2 marks)

TOTAL FOR PAPER: 100 MARKS

END