Write your name here

| Surname | Other Names |

Mathematics
November 2017 Paper 3 (Calculator Allowed)
Part 2 (Second half of the paper)
Edexcel Foundation Tier

Time: 45 minutes

Q	Topic	Max Mark	My Marks
16	Volume of a Cuboid,	5	
17	Factorising, Algebra Terminology	3	
18	Sequences, Nth Term	4	
19	Averages from Tables, Frequency Polygons	3	
20	Exchange Rates	3	
21	Compound Measures, Density	3	
22	Ratio Problems	3	
23	Indices, Error Intervals	3	
24	Forming and Solving Equations	5	
25	Standard Form	2	
26	Probability (Experimental)	3	
27	Simultaneous Equations	3	
	Total	40	

16 Chloe has a van.

She is going to use the van to deliver boxes.
Each box is a cuboid, 40 cm by 30 cm by 35 cm.
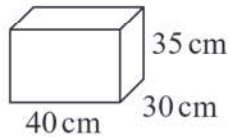
The space for boxes in the van has

maximum length   2.4 m
maximum width   1.5 m
maximum height   1.4 m

The space for boxes is empty.
Chloe wants to put as many boxes as possible into the van.

She can put 3 boxes into the van in one minute.
Assume that the space for boxes is in the shape of a cuboid.

(a) Work out how many minutes it should take Chloe to put as many boxes as possible into the van.

.... minutes

(4)

The space for boxes might **not** be in the shape of a cuboid.

(b) Explain how this could affect the time it would take Chloe to put as many boxes as possible into the van.

....

....

(1)

(Total for Question 16 is 5 marks)

Turn over ▶

17 (a) Factorise $4m + 12$

....

(1)

expression	equation	formula	identity
inequality	term	factor	multiple

(b) Choose two words from the box above to make this statement correct.

$5y$ is a .... in the .... $3x + 5y$

(2)

(Total for Question 17 is 3 marks)

18 Here is a sequence of patterns made with counters.

pattern number 1   pattern number 2   pattern number 3

(a) Find an expression, in terms of n, for the number of counters in pattern number n.

....

(2)

Bayo has 90 counters.

(b) Can Bayo make a pattern in this sequence using all 90 of his counters?
You must show how you get your answer.
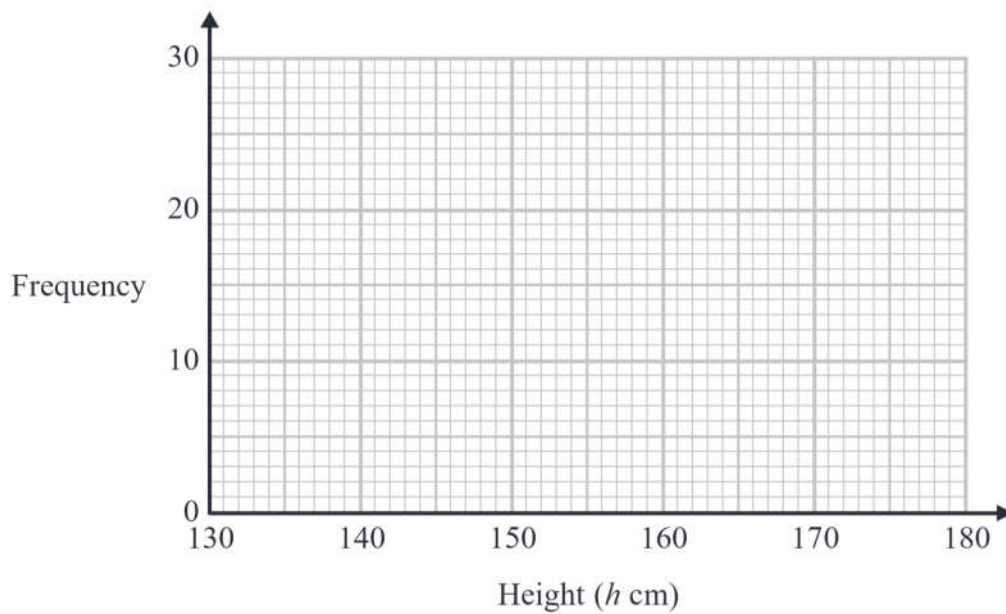
(2)

(Total for Question 18 is 4 marks)

19 The table shows information about the heights of 80 children.

Height (h cm)	Frequency
$130 < h \leqslant 140$	4
$140 < h \leqslant 150$	11
$150 < h \leqslant 160$	24
$160 < h \leqslant 170$	22
$170 < h \leqslant 180$	19

(a) Find the class interval that contains the median.

....

(1)

(b) Draw a frequency polygon for the information in the table.

(2)

(Total for Question 19 is 3 marks)

20 In London, 1 litre of petrol costs 108.9p
In New York, 1 US gallon of petrol costs $2.83

    1 US gallon = 3.785 litres
    £1 = $1.46

In which city is petrol better value for money, London or New York?
You must show your working.

(Total for Question 20 is 3 marks)

21 A gold bar has a mass of 12.5 kg.

The density of gold is 19.3 g/cm^3

Work out the volume of the gold bar.
Give your answer correct to 3 significant figures.

.... cm^3

(Total for Question 21 is 3 marks)

P 4 9 3 8 6 A 0 1 5 2 0

22 There are only blue pens, green pens and red pens in a box.

The ratio of the number of blue pens to the number of green pens is 2 : 5
The ratio of the number of green pens to the number of red pens is 4 : 1

There are less than 100 pens in the box.

What is the greatest possible number of red pens in the box?

....

(Total for Question 22 is 3 marks)

23 (a) Find the value of the reciprocal of 1.6
Give your answer as a decimal.

....

(1)

Jess rounds a number, x, to one decimal place.
The result is 9.8

(b) Write down the error interval for x.

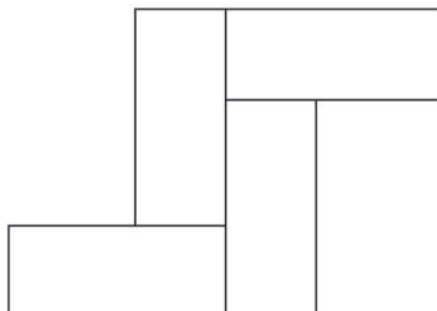...

(2)

(Total for Question 23 is 3 marks)

24 Here is a rectangle.

The length of the rectangle is 7 cm longer than the width of the rectangle.

4 of these rectangles are used to make this 8-sided shape.

The perimeter of the 8-sided shape is 70 cm.

Work out the area of the 8-sided shape.

.... cm²

(Total for Question 24 is 5 marks)

Turn over ▶

25 Work out $(13.8 \times 10^7) \times (5.4 \times 10^{-12})$

Give your answer as an ordinary number.

....

(Total for Question 25 is 2 marks)

26 When a drawing pin is dropped it can land point down or point up.

Lucy, Mel and Tom each dropped the drawing pin a number of times.

The table shows the number of times the drawing pin landed point down and the number of times the drawing pin landed point up for each person.

	Lucy	Mel	Tom
point down	31	53	16
point up	14	27	9

Rachael is going to drop the drawing pin once.

(a) Whose results will give the best estimate for the probability that the drawing pin will land point up?
Give a reason for your answer.

....

....

(1)

Stuart is going to drop the drawing pin twice.

(b) Use all the results in the table to work out an estimate for the probability that the drawing pin will land point up the first time and point down the second time.

....

(2)

(Total for Question 26 is 3 marks)

27 Solve the simultaneous equations

$$x + 3y = 12$$
$$5x - y = 4$$

$x = $ ....

$y = $ ....