Name: _____

End of Year 8 Sample Test

Envision Tuition

MATHEMATICS TUTORS

Date:

Time: 60 Minutes

Total marks available: 60

Total marks achieved: _____

ENVISION TUITION

Questions

Q1.

Write 7829 to the nearest 1000

.....

(Total for question = 1 mark)

Q2.

Here are four numbers.

–9 –2 2 9

Write one of these numbers in each box to make a correct calculation.

$$\square + \square = -7$$

(Total for question = 1 mark)

Q3.

Work out $2 + 7 \times 10$

.....

(Total for question = 1 mark)

Q4.

Simplify $e + e + e + e$

.....

(Total for question = 1 mark)

Q5.

Write 4.58 correct to 1 decimal place.

.....

(Total for question = 1 mark)

Q6.

Work out 3^2

.....

(Total for question = 1 mark)

Q7.

Here is a list of numbers.

5 11 18 22 29

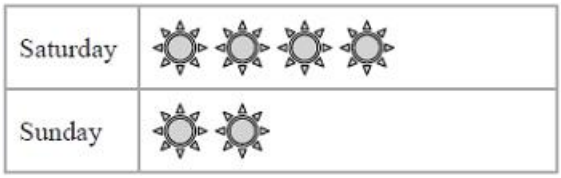
From the list, write down a multiple of 3

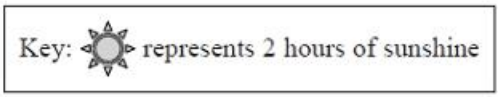
.....

(Total for question = 1 mark)

Q8.

The pictogram gives information about the number of hours of sunshine on a Saturday and on a Sunday.





Work out the number of hours of sunshine on Saturday.

..... hours

(Total for question = 1 mark)

Q9.

Write the following numbers in order of size.
Start with the smallest number.

0.61 0.1 0.16 0.106

.....

(Total for question = 1 mark)

Q10.

Jacqui wants to work out 3480 ÷ 5

She knows that $3480 \div 10 = 348$

Jacqui writes $3480 \div 5 = 174$

because $10 \div 5 = 2$
and $348 \div 2 = 174$

What mistake did Jacqui make in her method?

.....

.....

(Total for question = 1 mark)

Q11.

4 red bricks have a mean weight of 5 kg.
5 blue bricks have a mean weight of 9 kg.
1 green brick has a weight of 6 kg.

Donna says,

"The mean weight of the 10 bricks is less than 7 kg."

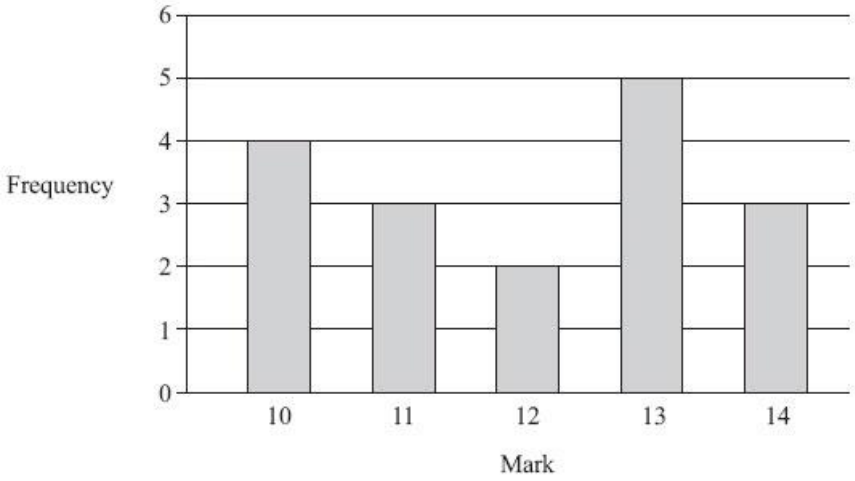
Is Donna correct?
You must show how you get your answer.

(Total for question = 3 marks)

Q12.

Mrs Smith gave her students a history test.

The bar chart shows information about the students' marks.



(a) Write down the number of students who got 10 marks.

.....

(1)

(b) Write down the mode.

.....

(1)

(c) Which two marks have the same frequency?

.....

(1)

(d) Work out the range.

.....

(2)

(e) How many students did the test?

.....

(2)

(Total for Question is 7 marks)

Q13.

(a) Solve $x + 9 = 19$

. . . . . .

(1)

(b) Solve $2y = 17$

. . . . . .

(1)

(c) Solve $\frac{w}{4} = 8$

. . . . . .

(1)

(d) Expand $3(2 + t)$

. . . . . .

(1)

(Total for Question is 4 marks)

Q14.

There are 210 counters in a bag.

30% of these counters are red.

Work out the number of red counters in the bag.

.....

(Total for question = 2 marks)

Q15.

Write 0.8 as a percentage.

..... %

(Total for question = 1 mark)

Q16.

Azmol is paid £1500 per month.
He is going to get a 3% increase in the amount of money he is paid.

Work out how much money Azmol will be paid per month after the increase.

£ .....

(Total for question = 2 marks)

Q17.

* Two shops, Mega Bathrooms and Bathroom Mart, each have a sale.

Mega Bathrooms	**Bathroom Mart**
Sale	Sale
60% off normal price **then** 15% off	$\frac{2}{3}$ off normal price

Sally wants to buy some bathroom units.
The units have a normal price of £1500

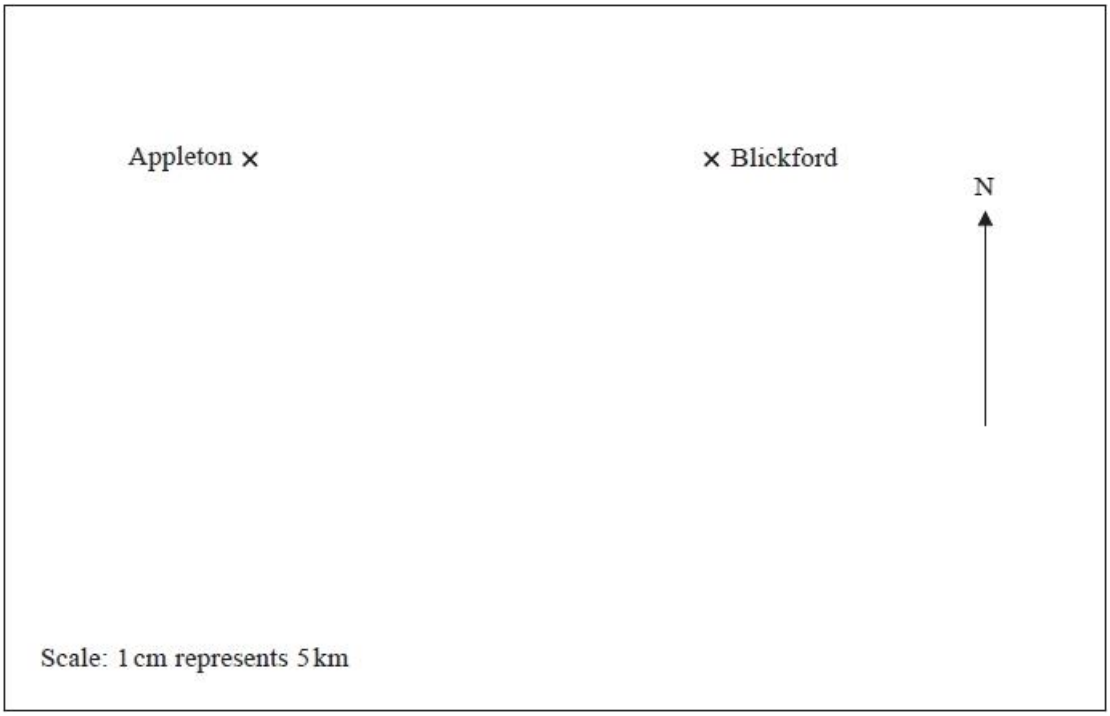
Sally wants to buy the units as cheaply as possible.

Which shop should she buy the units from?
You must show all your working.

(Total for question = 4 marks)

Q18.

Here is part of an accurately drawn map showing two towns, Appleton and Blickford.



(a) Find, in kilometres, the real distance between Appleton and Blickford.

..... km

(2)

Cookwood is a town 22 km due South of Blickford.

(b) On the map, mark with a cross (×) the position of Cookwood.

(2)

(Total for question = 4 marks)

Q19.

One kilogram of cheese costs £5.60
Jane buys 200 g of cheese.

Work out how much Jane pays.

£ . . . . . .

(Total for Question is 3 marks)

Q20.

Here are the ingredients needed to make 16 gingerbread men.

Ingredients
to make **16** gingerbread men 180 g flour
40 g ginger
110 g butter
30 g sugar

Hamish wants to make 24 gingerbread men.

Work out how much of each of the ingredients he needs.

.....g flour

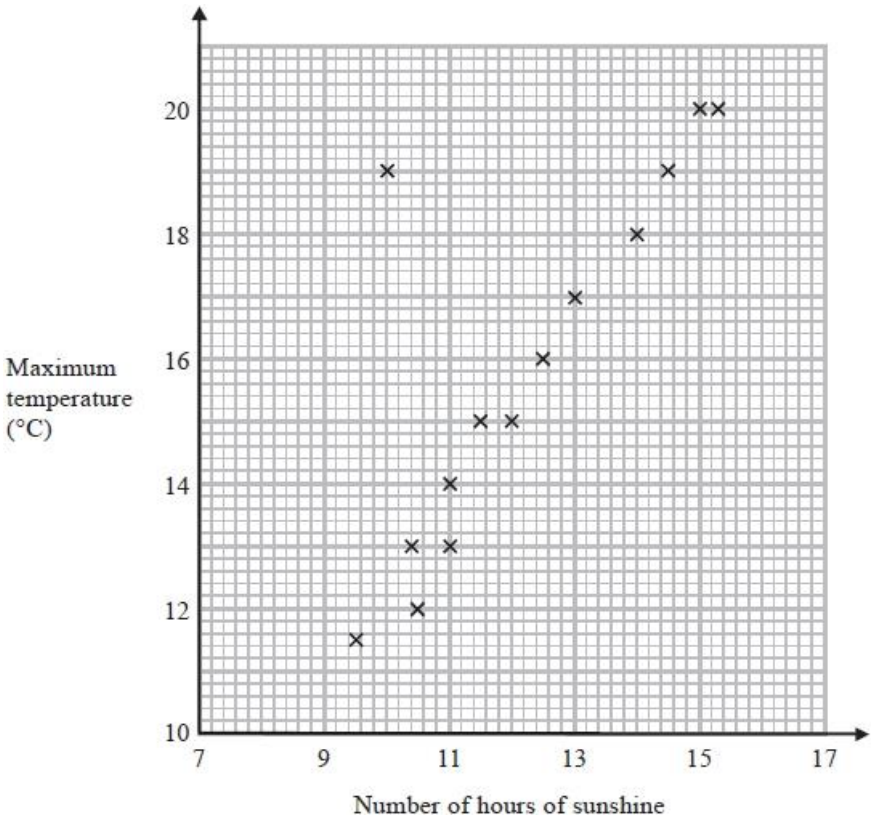
.....g ginger

.....g butter

.....g sugar

(Total for Question is 3 marks)

Q21. The scatter graph shows the maximum temperature and the number of hours of sunshine in fourteen British towns on one day.



One of the points is an outlier.

(a) Write down the coordinates of this point.

(..... , ...)

(1)

(b) For all the other points write down the type of correlation.

.....

(1)

On the same day, in another British town, the maximum temperature was 16.4°C.

(c) Estimate the number of hours of sunshine in this town on this day.

..... hours

(2)

A weatherman says,

"Temperatures are higher on days when there is more sunshine."

(d) Does the scatter graph support what the weatherman says?

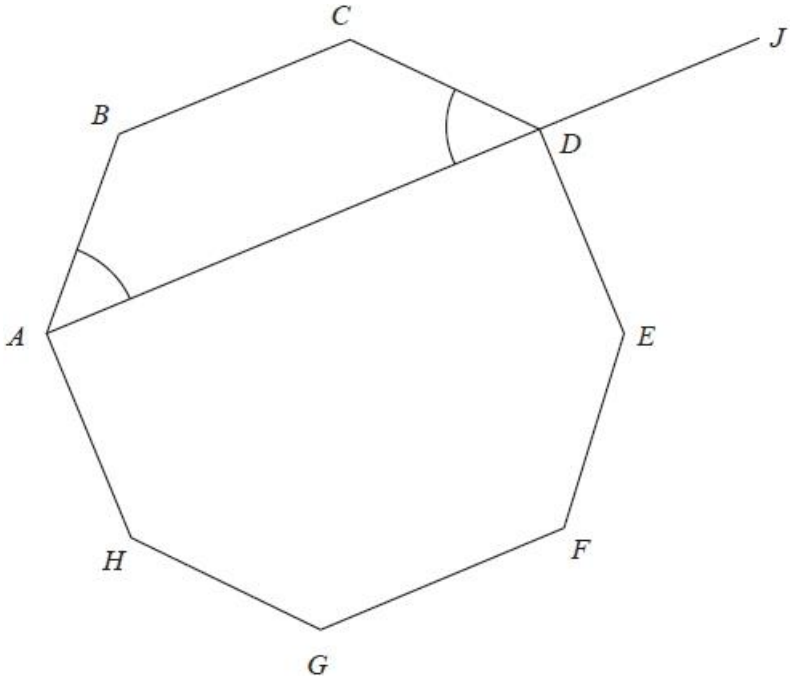
Give a reason for your answer.

.....

.....

(1)(Total for question = 5 marks)

Q22.



ABCDEFGH is a regular octagon.
ADJ is a straight line.

angle *BAD* = angle *CDA*

Show that angle *CDJ* = 135°

(Total for question = 4 marks)

Q23.

Bhavna drives 200 miles in 4 hours.

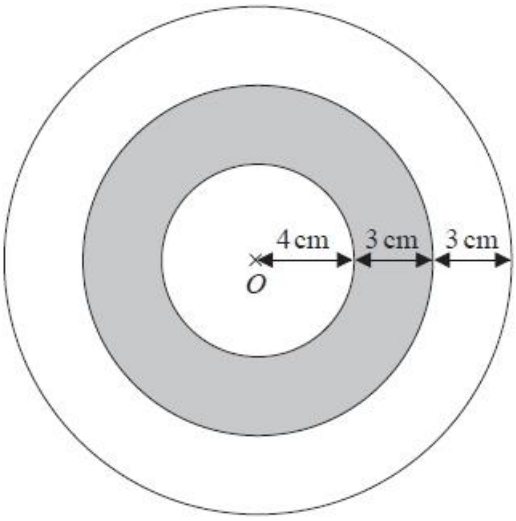
Work out her average speed.

..... mph

(Total for question = 2 marks)

Q24.

The diagram shows a logo made from three circles.



Each circle has centre *O*.

Daisy says that exactly $\frac{1}{3}$ of the logo is shaded.

Is Daisy correct?
You must show all your working.

(Total for question = 4 marks)

Q25.

$y = 6x - 5$

Work out the value of y when $x = 4$

$y =$ .....

(Total for question = 2 marks)

Mark Scheme

Q1.

Question	Answer	Mark	Mark scheme	Additional guidance
	8000	B1	cao	

Q2.

Question	Working	Answer	Mark	Notes
		−9 , 2	B1	cao accept either order.

Q3.

Question	Working	Answer	Mark	Notes
		72	B1	cao

Q4.

Question	Answer	Mark	Mark scheme	Additional guidance
	$4e$	B1	for $4e$ oe	e^4 gets no marks, where the 4 is clearly a power

Q5.

Question	Answer	Mark	Mark scheme	Additional guidance
	4.6	B1	cao	

Q6.

Question	Answer	Mark	Mark scheme	Additional guidance
	9	B1	cao	

Q7.

Question	Answer	Mark	Mark scheme	Additional guidance
	18	B1	cao	18 must be the only number selected for this award

Q8.

Question	Answer	Mark	Mark scheme	Additional guidance
	8	B1	cao	

Q9.

Paper 1MA1: 1F			
Question	Working	Answer	Notes
		0.1,0.106,0.16,0.61	B1

Q10.

Question	Working	Answer	Mark	Notes
		Identifies error in method	C1	Explanation of error eg she should have multiplied 348 by 2 not divided

Q11.

Question	Answer	Mark	Mark scheme	Additional guidance
	No (supported)	P1	for process to find total weight of the 4 red bricks, eg. 5 × 4 (= 20) **or** for process to find total weight of the 5 blue bricks, eg. 9 × 5 (= 45)	May be seen next to statements 20 must be clearly referenced to the red bricks. 5 + 9 + 6 = 20 scores no marks
		P1	for process to find total weight of all 10 bricks, eg. "20" + "45" + 6 (= 71)	
		C1	No with correct supporting evidence **Acceptable examples** No, it is 7.1 She is wrong, it is 0.1 more No, (the total weight is) 71 not 70 **Not acceptable examples** Yes .... No, it is 71	Candidates working in grams will need to give 7100 and 7000 for example as comparable figures.

Q12.

		Working	Answer	Mark	Notes
	(a)		4	1	B1 cao
	(b)		13	1	B1 cao
	(c)		11 and 14	1	B1 cao
	(d)		4	2	M1 for 14−10 or 10 –14 or –4 or 10 to 14 or 14 to 10 A1 cao
	(e)	4 + 3 + 2 + 5 + 3	17	2	M1 for adding at least 4 correct heights out of 4 or 5 heights A1 cao

Q13.

		Working	Answer	Mark	Notes
	(a)		10	1	B1 cao
	(b)		8.5	1	B1 accept $17/2$ or 8 ½
	(c)		32	1	B1 cao
	(d)		$6 + 3t$	1	B1 for $6 + 3t$

Q14.

Question		Working	Answer	Mark	Notes
			63	2	M1 for $\frac{30}{100} \times 210$ or 0.3×210 or $21 + 21 + 21$ oe A1 cao

Q15.

Question	Working	Answer	Notes
		80	B1

Q16.

Question	Working	Answer	Mark	Notes
		1545	M1	shows a method to find 3% eg 1500 × 0.03 (=45)
			A1	cao

Q17.

PAPER: 1MA0/1F				
Question	**Working**	**Answer**	**Mark**	**Notes**
*		Bathroom Mart and correct figures	4	M1 for $\frac{1}{3} \times 1500$ (= 500) or $\frac{2}{3} \times 1500$ (= 1000) M2 for a correct method to reduce 1500 by 60% **and then** by a further 15% eg 1500 × "0.4" × 0.85 (= 510) oe (M1 for method to find 60% or 40% of 1500 e.g. $\frac{60}{100} \times 1500$ (= 900) C1 for 510 and 500 with a correct conclusion.

Q18.

Question	Working	Answer	Mark	Notes
(a)		35	M1	for measuring distance correctly (6.8 to 7.2 cm) or multiplying their distance by 5
			A1	for answer in the range 34 to 36
(b)		× on the map	M1	for method to use the scale to equate 22 km to cm, eg 22 ÷ 5 (= 4.4) or for a point plotted due South of B (± 2°)
			A1	for correct position on map

Q19.

		Working	Answer	Mark	Notes
			£1.12	3	M1 for use of 1000 g in 1 kg eg. 1000 ÷ 200(=5) ; 200 ÷ 1000(=0.2) oe ; 20% ; 500g costs £2.80 ; 100g costs 56p M1(dep) for a fully correct method eg. 5.60 ÷ "5" (= 1.12) **or** 56 × 2 A1 £1.12 or 112p

Q20.

Question		Working	Answer	Mark	Notes
		180×1.5 40×1.5 110×1.5 30×1.5	Flour = 270 Ginger = 60 Butter = 165 Sugar = 45	3	M1 for ×24÷16 oe or 24/16 or 1.5 seen or 180 + 90 (=270) or 40 + 20 (=60) or 110 + 55 (=165) or 30 + 15 (=45) or sight of any one of the correct answers A2 for all 4 correct answers (A1 for 2 or 3 correct answers)

Q21.

Question	Working	Answer	Mark	Notes
(a)		10,19	B1	cao
(b)		Positive	C1	positive (correlation)
(c)		12 to 13	M1	for an appropriate line of best fit drawn, or a point marked at (x, 16.4) or a horizontal line drawn from 16.4 across to (x, 16.4) where x is in the range 12 to 13
			A1	hours given in the range 12 to 13
(d)		explanation	C1	(yes) e.g. as the majority of points for high temperature appear when there are more hours of sunshine (positive correlation)

Q22.

Question	Working	Answer	Mark	Notes
		Correct conclusion from correct working	M1	for a method to find the interior angle, e.g. $(8 - 2) \times 180 \div 8$ (= 135) or exterior angle, e.g. 360 ÷ 8 (= 45) of a regular octagon
			A1	for interior angle = 135 or exterior angle = 45
			M1	for method to find size of angle CDA, e.g. $(360 - 135 \times 2)/2$ (= 45) or for stating and using BC parallel to AD
			C1	for method to complete the solution with angle CDJ = 135 e.g. 180 − "45" (= 135) or angle BCD and angle CDJ are alternate angles

Q23.

5MB2F_01 November 2015					
Question		Working	Answer	Mark	Notes
			50	2	M1 for 200 ÷ 4 A1 cao

Q24.

Question	Working	Answer	Mark	Notes
		Daisy is wrong	P1	for process to find area of any relevant circle ie $\pi\times4^2$ (=16π), $\pi\times7^2$ (=49π), $\pi\times10^2$ (=100π) **or** 7^2 and 4^2
		(supported)	P1	for completed method to find shaded area eg "$\pi\times7^2$" – "$\pi\times4^2$" (=33π) **or** use of radii eg $7^2 - 4^2$ (=33)
			A1	for 2 comparable figures, eg 33π and 100π **or** 33 and 100 **or** 103 to 103.7 and 314 to 314.2 **or** 103 to 103.7 and 104.6 to 104.8
			C1	statement eg No because it should be $\frac{33}{100}$ and their accurate figures Allow use of π = 3 or better

Q25.

Question	Answer	Mark	Mark scheme	Additional guidance
	19	M1	for a correct substitution, eg (y =) 6 × 4 – 5	
		A1	cao	