

Write your name here

Surname

Other Names

Mathematics

**June 2017 Paper 3 (Calculator Allowed)
Part 1 (First half of the paper)
Edexcel Higher Tier**

Time: 45 minutes

Q	Topic	Max Mark	My Marks
1	Venn Diagrams	6	
2	Simultaneous Equations	3	
3	Averages from Frequency Tables, Probability	2	
4	Sharing Ratio, Fraction/Percentage of Amount	5	
5	Angles in Polygons	4	
6	Compound Measures, Density	4	
7	Trigonometry, SOHCAHTOA	2	
8	Area of a Circle, Pythagoras' Theorem	4	
9	Box Plots	5	
10	Repeated Percentage Change	3	
	Total	38	

For worked solutions and video solutions visit mathsgenie.co.uk

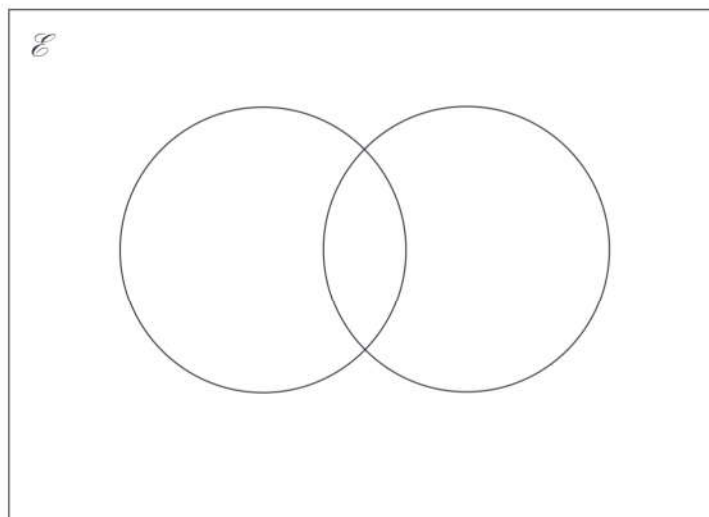
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 $\mathcal{E} = \{\text{odd numbers less than 30}\}$
 $A = \{3, 9, 15, 21, 27\}$
 $B = \{5, 15, 25\}$

(a) Complete the Venn diagram to represent this information.



(4)

A number is chosen at random from the universal set, \mathcal{E} .

(b) What is the probability that the number is in the set $A \cup B$?

(2)

(Total for Question 1 is 6 marks)

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2 Solve the simultaneous equations

$$\begin{aligned}3x + y &= -4 \\3x - 4y &= 6\end{aligned}$$

$x =$

$y =$

(Total for Question 2 is 3 marks)



- 3 The table shows some information about the dress sizes of 25 women.

Dress size	Number of women
8	2
10	9
12	8
14	6

- (a) Find the median dress size.

.....
(1)

3 of the 25 women have a shoe size of 7

Zoe says that if you choose at random one of the 25 women, the probability that she has either a shoe size of 7 or a dress size of 14 is $\frac{9}{25}$ because

$$\frac{3}{25} + \frac{6}{25} = \frac{9}{25}$$

- (b) Is Zoe correct?

You must give a reason for your answer.

.....
.....
(1)

(Total for Question 3 is 2 marks)



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4 Daniel bakes 420 cakes.
He bakes only vanilla cakes, banana cakes, lemon cakes and chocolate cakes.

$\frac{2}{7}$ of the cakes are vanilla cakes.

35% of the cakes are banana cakes.

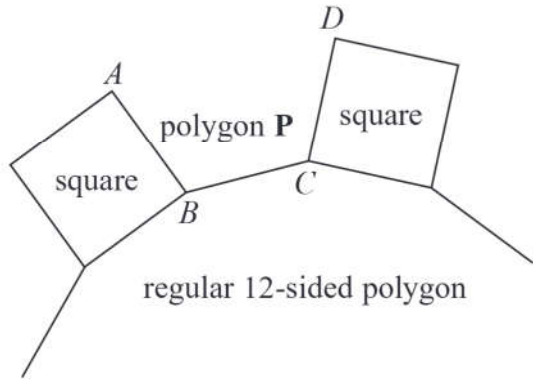
The ratio of the number of lemon cakes to the number of chocolate cakes is 4:5

Work out the number of lemon cakes Daniel bakes.

.....
(Total for Question 4 is 5 marks)



5 In the diagram, AB , BC and CD are three sides of a regular polygon P .



Show that polygon P is a hexagon.
You must show your working.

(Total for Question 5 is 4 marks)

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6 The density of apple juice is 1.05 grams per cm^3 .

The density of fruit syrup is 1.4 grams per cm^3 .

The density of carbonated water is 0.99 grams per cm^3 .

25 cm^3 of apple juice are mixed with 15 cm^3 of fruit syrup and 280 cm^3 of carbonated water to make a drink with a volume of 320 cm^3 .

Work out the density of the drink.

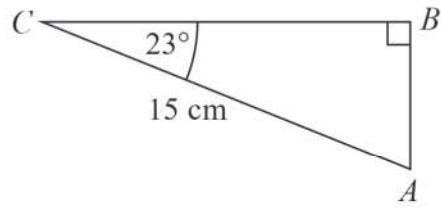
Give your answer correct to 2 decimal places.

.....g/ cm^3

(Total for Question 6 is 4 marks)



7 ABC is a right-angled triangle.



Calculate the length of AB .

Give your answer correct to 3 significant figures.

.....cm

(Total for Question 7 is 2 marks)



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8 A square, with sides of length x cm, is inside a circle.
Each vertex of the square is on the circumference of the circle.

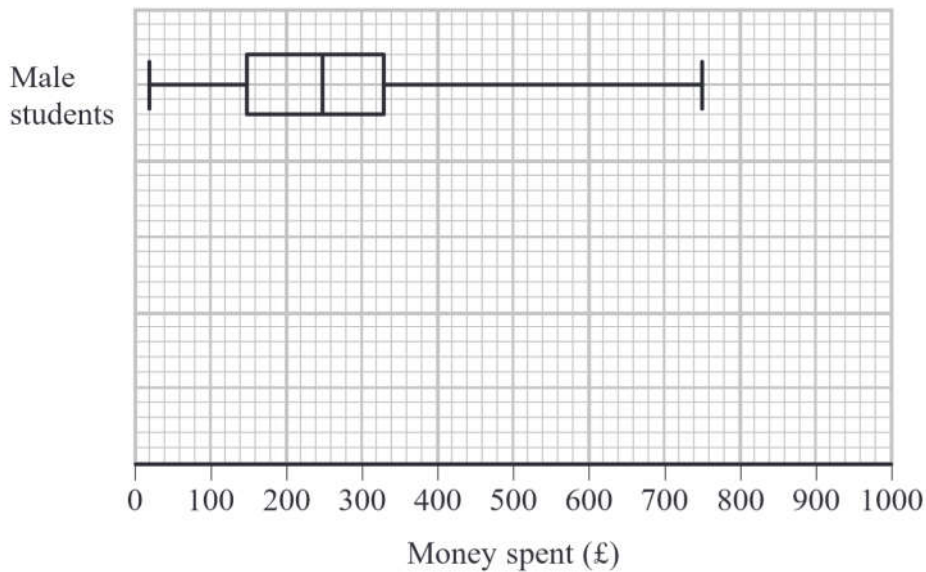
The area of the circle is 49 cm^2 .

Work out the value of x .
Give your answer correct to 3 significant figures.

.....
(Total for Question 8 is 4 marks)



- 9 The box plot shows information about the distribution of the amounts of money spent by some male students on their holidays.



- (a) Work out the interquartile range for the amounts of money spent by these male students.

£..... (2)

The table below shows information about the distribution of the amounts of money spent by some female students on their holidays.

	Smallest	Lower quartile	Median	Upper quartile	Largest
Money spent (£)	60	180	300	350	650

- (b) On the grid above, draw a box plot for the information in the table. (2)



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Chris says,

“The box plots show that the female students spent more money than the male students.”

(c) Is Chris correct?

Give a reason for your answer.

.....

.....

.....

.....

(1)

(Total for Question 9 is 5 marks)

10 Naoby invests £6000 for 5 years.

The investment gets compound interest of $x\%$ per annum.

At the end of 5 years the investment is worth £8029.35

Work out the value of x .

.....

(Total for Question 10 is 3 marks)

