

Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 A tin contains tea bags with a choice of four different flavours of tea. The four flavours of tea are Assam or Darjeeling or Nilgiri or Rize.

Sara takes at random a tea bag from the tin.

The table shows each of the probabilities that the flavour of the tea Sara takes is Assam or Darjeeling or Rize.

<b>Flavour of tea</b>	Assam	Darjeeling	Nilgiri	Rize
<b>Probability</b>	0.38	0.24		0.16

- (a) Work out the probability that the flavour of the tea Sara takes is Nilgiri.

.....  
(2)

- (b) Work out the probability that the flavour of the tea Sara takes is either Darjeeling or Rize.

.....  
(2)

(Total for Question 1 is 4 marks)



2 Mary saves for a holiday each year.

In 2020 she saved a total of \$720

In 2021, each month she saved \$78

The total amount Mary saved in 2021 was  $P\%$  more than the total she saved in 2020

(a) Work out the value of  $P$

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.....  
(4)



Roberto is going to go on holiday.

He has two coupons that will save him money on his holiday.

**Coupon A**

18% off the cost of the accommodation

**Coupon B**

12.5% off the total cost of the accommodation **and** the flights

For Roberto's holiday

the cost of the accommodation is \$1600

the cost of the flights is \$800

Roberto can only use one of the coupons.

He wants to save as much money as he can.

- (b) Which of the two coupons, **A** or **B**, should he use?  
Show your working clearly.

(3)

(Total for Question 2 is 7 marks)



3 (a) Solve  $4y + 5 > 12$

.....  
(2)

(b) Solve  $6x - 5 = \frac{4x - 7}{2}$

Show clear algebraic working.

$x =$  .....  
(3)

**(Total for Question 3 is 5 marks)**

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4 The diagram shows a regular octagon  $ABCDEFGH$  and a regular pentagon  $ABIJK$

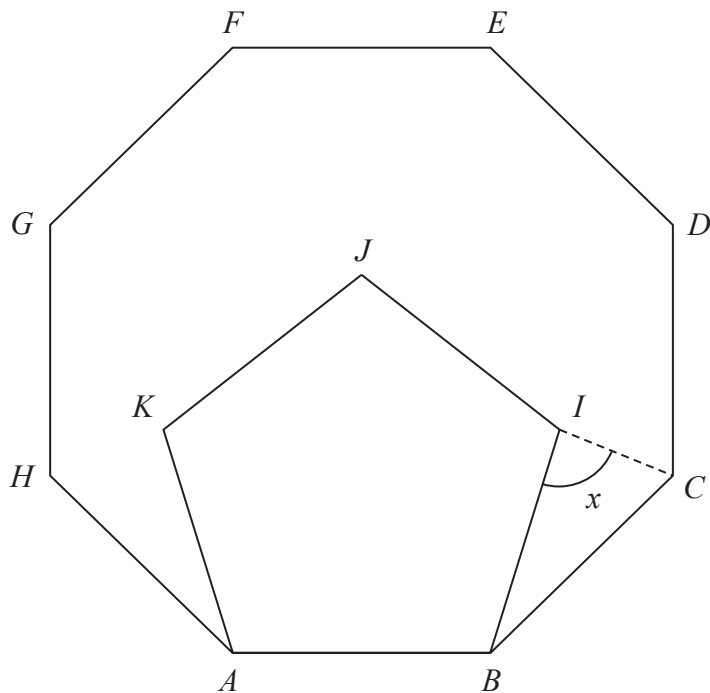


Diagram NOT accurately drawn

Work out the size of the angle  $x$

(Total for Question 4 is 4 marks)



P 6 8 7 2 9 A 0 7 3 2

- 5 Shane invests 7200 dollars for 3 years in a savings account.  
He gets 2.5% per year compound interest.

How much money will Shane have in his savings account at the end of 3 years?  
Give your answer to the nearest dollar.

..... dollars

**(Total for Question 5 is 3 marks)**

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6 (a) Write down the value of  $x^0$

.....  
(1)

Given that  $2^{-3} \times 2^9 = 2^n$

(b) find the value of  $n$

$n =$  .....  
(1)

Given that  $\frac{7^{206} \times 7^m}{7^{214}} = 7^{-3}$

(c) find the value of  $m$

$m =$  .....  
(2)

(Total for Question 6 is 4 marks)



- 7 (a) Write down an equation of the straight line with gradient  $-3$  and which passes through the point with coordinates  $(0, 5)$

.....  
(2)

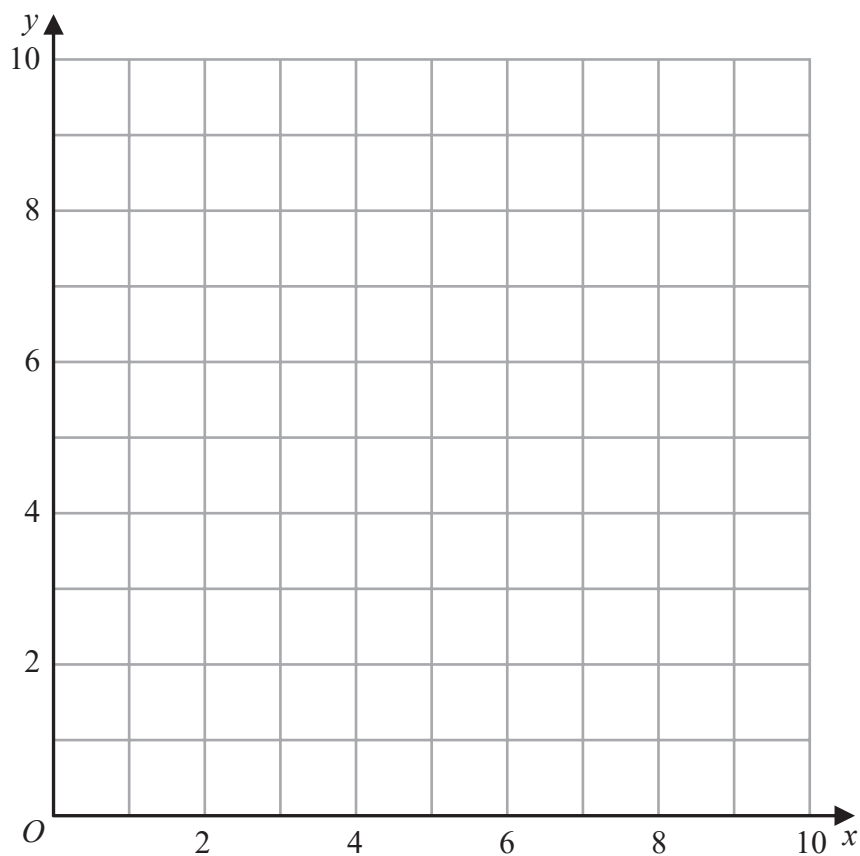
- (b) Show, by shading on the grid, the region defined by **all three** of the inequalities

$$x \leq 6$$

$$y \geq 2$$

$$y \leq x + 1$$

Label the region **R**



(3)

(Total for Question 7 is 5 marks)





8 A scientist is investigating the weight of 50 tigers.

Here is some information about these tigers.

	Type of tiger	
	Siberian	Bengal
Number of tigers	22	28
Mean weight of tigers (kg)	260	

The mean weight of all 50 tigers is 218 kg

Work out the mean weight of the Bengal tigers.

..... kg

(Total for Question 8 is 3 marks)

