SECTION I

ANSWER **ALL** QUESTIONS IN THIS SECTION

Write your answers in the spaces provided. Remember to show all working.

1. (a) Calculate the value of $6\frac{1}{6} - 1\frac{3}{4}$, expressing your answer as a mixed number.
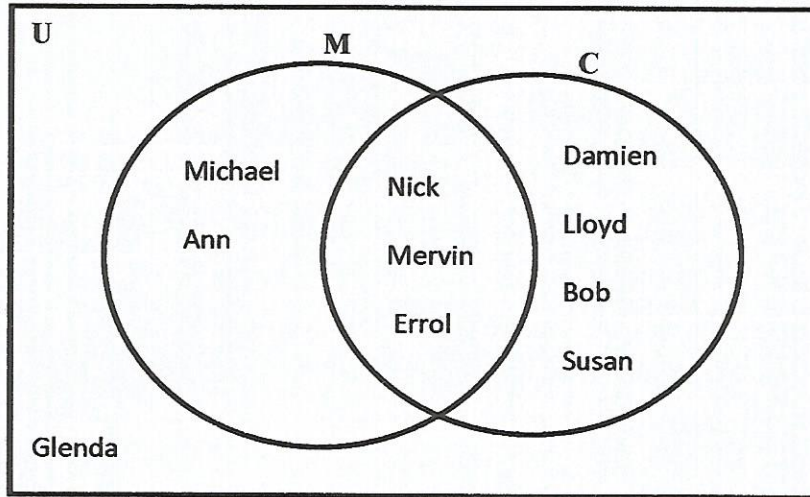
[3 marks]

(b) Convert $\frac{3}{8}$ to a percent.

[2 marks]

(c) Express 7.185 correct to 2 significant figures.

[1 mark]

2.   U = {my friends}

M = {friends who are good at Mathematics}

C = {friends who play cricket}

Use the Venn Diagram to answer the following:

a) i) List all my friends who are good at Mathematics   [1 mark]

= { _____ }

ii) How many of my friends play cricket ONLY? _____   [1 mark]

b) i) How many of my friends are neither good at Math nor play cricket? _____   [1 mark]

ii) What is the probability that my friends are neither good at Mathematics   [1 mark]
    nor play cricket?

_____

c)   What is the probability that my friends are good at Math **and** play cricket?   [2 marks]

_____

3. (a) Simplify the following expressions:

        (i) $6m - 2p - 3m + 4p$ [1 mark]

        (ii) $3x \, (5x - 5) - 4x^2$ [2 marks]

(b) Factorize completely

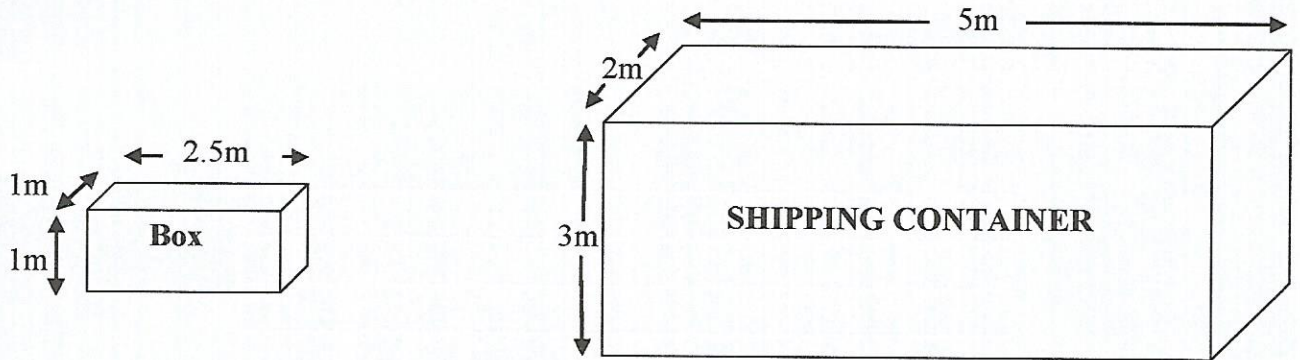   (i) $30 + 24p$ [1 mark]

        (ii) $6p^2 + 19p + 15$ [2 marks]

4. Cuboid- shaped boxes will be loaded onto a shipping container. The shipping container is in the shape of a rectangular cuboid. The edges of each box measure 2.5 m by 1m by 1m and the dimensions of the shipping container are 5m by 2m by 3m, as shown below (**not drawn to scale**).


(a)   What is the volume in **cubic metres**, of a box?   [2 marks]

(b)   Determine the number of boxes that will completely fill the shipping container.   [2 marks]

(c)   Convert the volume of **a box** from cubic metres to cubic centimetres.   [2 marks]

5. The quadrilateral ABCD is shown in the diagram.

(a) ABCD is translated under $\begin{pmatrix} 6 \\ 9 \end{pmatrix}$ to produce its image A′B′C′D′.

Draw and label the image A′B′C′D′ on the diagram below.   [4 marks]
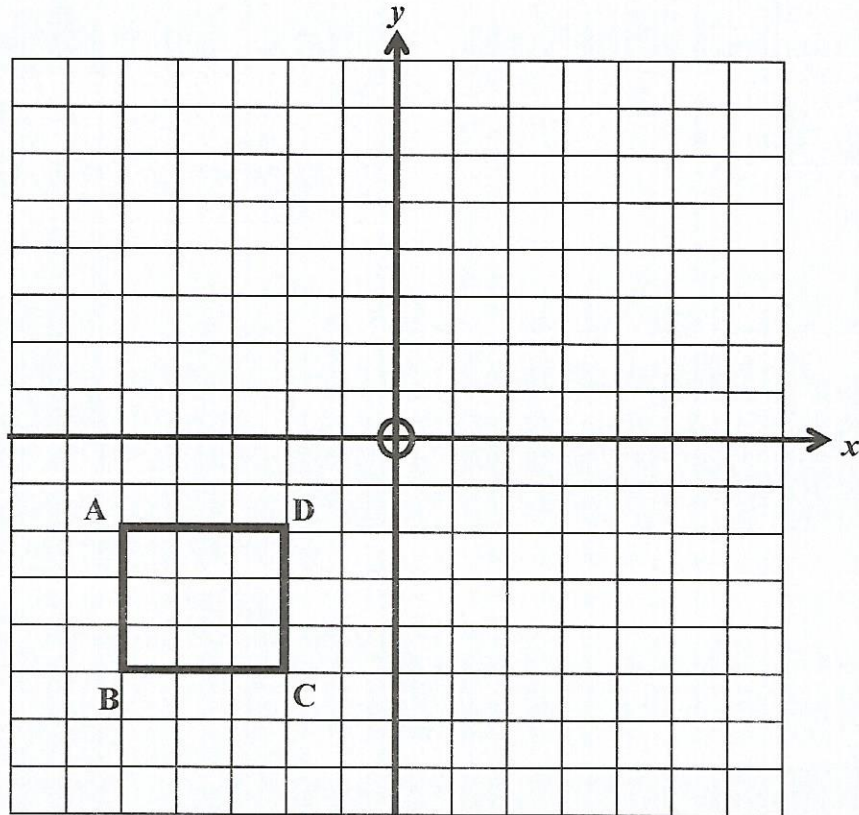
(b) Draw the lines of symmetry for A′B′C′D′ on the diagram above.   [2 marks]

6.   The following list shows the number of occupants in each of 25 cars travelling towards Port of Spain. The number of occupants for each car passing the light house was recorded during a 2 minute period.

2	2	5	4	2
5	2	3	1	5
2	1	2	3	3
3	2	4	2	6
3	4	3	2	4

(a) Using the data given, complete the frequency table below.   [2 marks]

Number of occupants per car	Tally	Frequency
1		
2		
3		
4		
5		
6		

(b) What is the modal number of occupants per car?   [1 mark]

(c) Calculate the mean number of occupants per car.   [3 marks]

SECTION II

ANSWER <u>TWO (2) QUESTIONS ONLY</u> FROM THIS SECTION

7. (a) An art dealer wishes to buy a painting online from France. He has to pay in euros (€). The exchange rate is TT$1.00 = € 0.125.

    i)   Convert € 1 to TT dollars.   [1 mark]

    ii) If the painting costs € 250 000, then what is the cost in $TT?

                                                                          [2 marks]

    (b) Mary invests $12 000 at a bank which pays 3% simple interest. After a certain number of years, the total amount she receives is $15 240.

    i)   How much interest did Mary receive?   [1 mark]

    ii) Calculate the number of years in which Mary invested her money at the bank
                                                                          [2 marks]
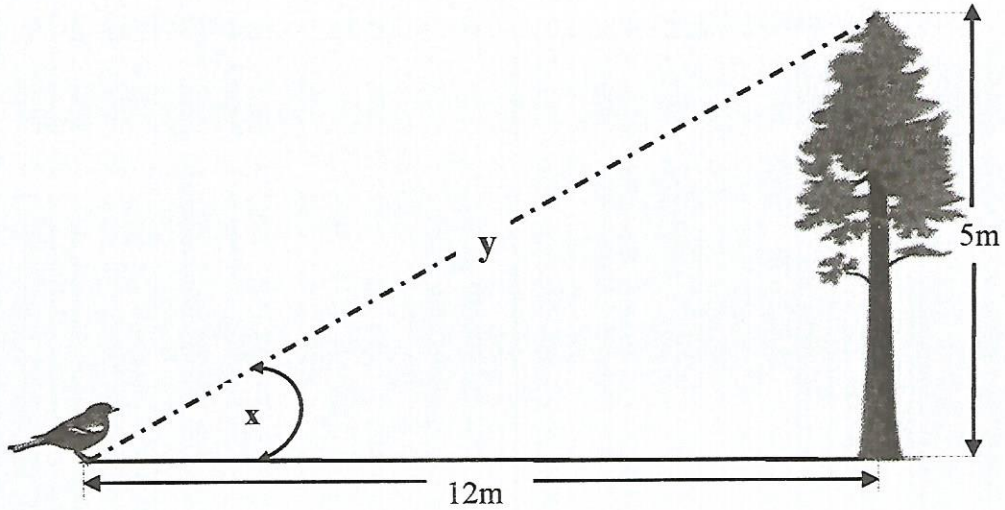
7. (b) **Use a compass, ruler and pencil only. Show all construction lines.**

   (i) Construct an isosceles triangle ABC such that AB = AC = 5.8 cm and angle BAC = 90°. Measure and write down the length of BC to 1 decimal place.

[3 marks]

   (ii) Construct an angle PQR= 60°

[3 marks]

8. (a)   A bird is on the ground 12m from the base of a tree. It flies directly to the top of a tree which is 5m tall **(not drawn to scale)**.


(i)   Calculate the distance, **y**, flown by the bird.

[3 marks]

(ii)   Calculate the value of angle **x** as shown in the diagram above correct to 2 decimal places.

[3 marks]

8. (b)   Alain's plane departs Piarco International Airport (POS), Trinidad at 2:35 p.m. and arrives at
the Arthur Napoleon Raymond Robinson International Airport (TAB), Tobago at 3:05 p.m..
The distance between the airports is 83 km.

| Piarco International Airport (POS) | ←—— 83 km ——→ | Arthur Napoleon Raymond Robinson International Airport (TAB) |
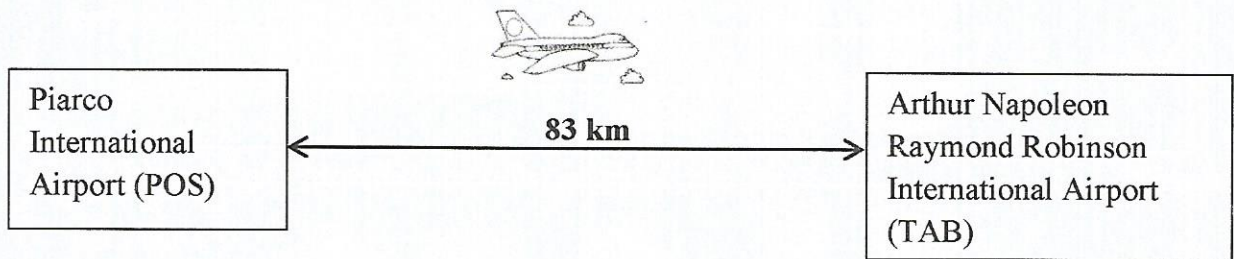
(i)   Calculate the actual distance, in **centimetres**, between the two airports.
(**Use scale: 1 cm represents 10 km**).   [1 mark]

(ii)   What is the distance between the two airports, in **metres**?   [1 mark]

(iii) How many **minutes** did Alain take to arrive at the Arthur Napoleon Raymond
Robinson International Airport?   [1 mark]

(iv)   How long did Alain take to arrive at Arthur Napoleon Raymond Robinson
International Airport, in **hours**?   [1 mark]

(v)   What is the average speed of the airplane, in **kilometres per hour**, from Piarco
International Airport to Arthur Napoleon Raymond Robinson International Airport?

[2 marks]

9. (a) The number of cups of coffee and pieces of cake bought by Indra and Carol, and the amounts each spent are shown below.

| Indra | | Total Cost $12.00 |
| Carol | | Total Cost $13.00 |

Use x to represent the cost in dollars of one cup of coffee and y to represent the cost in dollars of one piece of cake.

(i) Write an equation using x and y to represent the total cost of the cups of coffee and pieces of cake **Indra** bought.

[2 marks]

(ii) Determine the **cost** of :
- 1 piece of cake
- 1 cup of coffee

[4 marks]

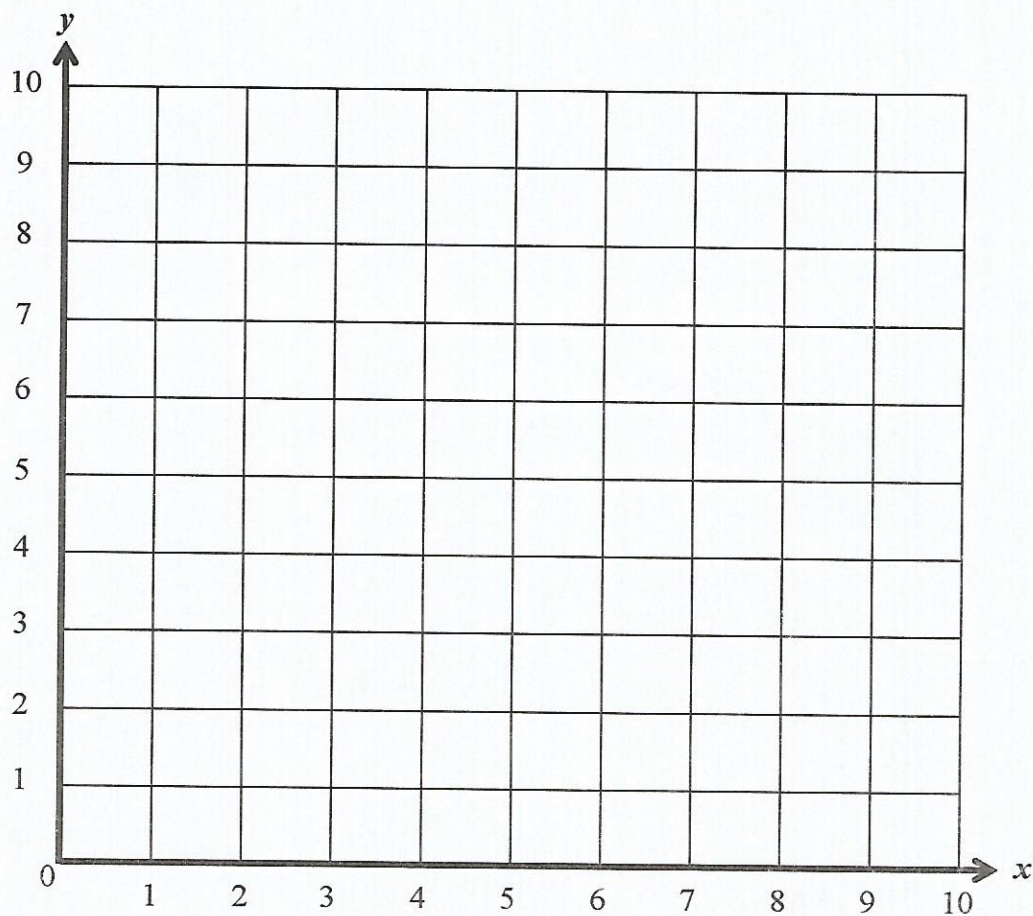9. (b)   The equation $y = 2x + 1$ gives the relationship between x and y.

(i)   Use the equation to complete the table.   [2 marks]

x	0	2	3	4
y	1		7	

(ii)   Using the grid provided, draw the graph of $y = 2x + 1$.   [2 marks]

(iii)   State the coordinates of the *y intercept* for the graph $y = 2x + 1$.   [2 marks]

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