THE GOVERNMENT OF THE REPUBLIC OF TRINIDAD AND TOBAGO

MINISTRY OF EDUCATION

NATIONAL CERTIFICATE OF SECONDARY EDUCATION 2012
(Level 1)

MATHEMATICS - PAPER II

TIME: 90 Minutes

Student's Name _____

School's Name _____

School's ID

Student's Number

SECTION I

ANSWER <u>ALL</u> QUESTIONS IN THIS SECTION

Write your answers in the spaces provided and show ALL working.

1. (a) Calculate the exact value of

$$\left[\frac{1}{2} + \frac{1}{3} \right] \div \frac{5}{9}$$

[4 marks]

(b) Express $2\frac{3}{8}$ in decimal form, stating your answers

    (i) exactly

[1 mark]

    (ii) correct to 2 significant figures

[1 mark]

TOTAL: 6 marks

2. A toy vendor bought 120 toys for $1500.00.

   (a) (i) Calculate the Cost Price of one toy.
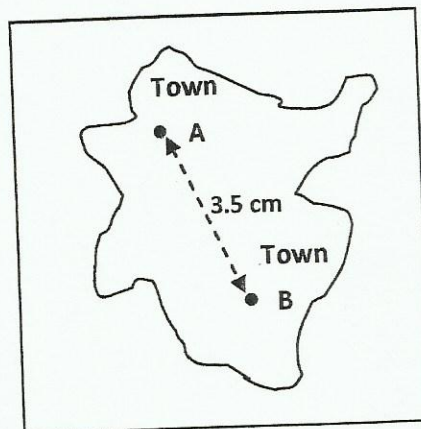
   [2 marks]

   (ii) If each toy is sold to make a profit of 50 %, how much, **in dollars**, is the total profit

   gained by the vendor?

   [2 marks]

   (b) On a map, 1 cm represents 15 km. What is the actual distance, in km, between 2 towns, A
   and B, that are 3.5 cm apart on the map?

   [2 marks]

   TOTAL: 6 marks

4

3. Mr. Allen opened a fixed deposit account at the National Bank on the day that his son was born. On his son's fifth birthday, he gained $1000.00 simple interest on the account.
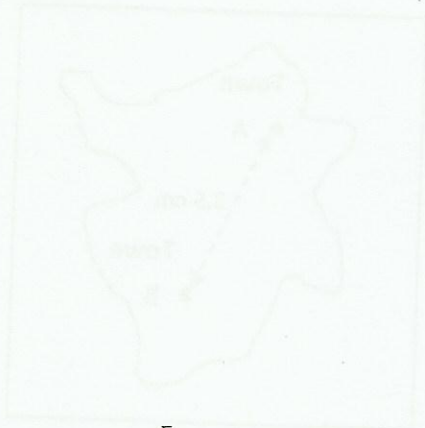
Interest was calculated at 4% per annum.

(a) How much money did Mr. Allen invest in the account when his son was born?

[4 marks]

(b) What was the total amount of money in the account at the time of his son's fifth birthday?

[2 marks]

TOTAL: [6 marks]

4. A book costs $15 **more than** a magazine.

Let m represent the cost, in dollars, of a magazine.

(a) Write an algebraic expression, in terms of m, to represent the cost of one book.

[1 mark]

(b) The cost of four magazines and one book is $50.00.

Write an equation, in terms of m, to represent this information. [2 marks]

(c) Find the cost, **in dollars**, of
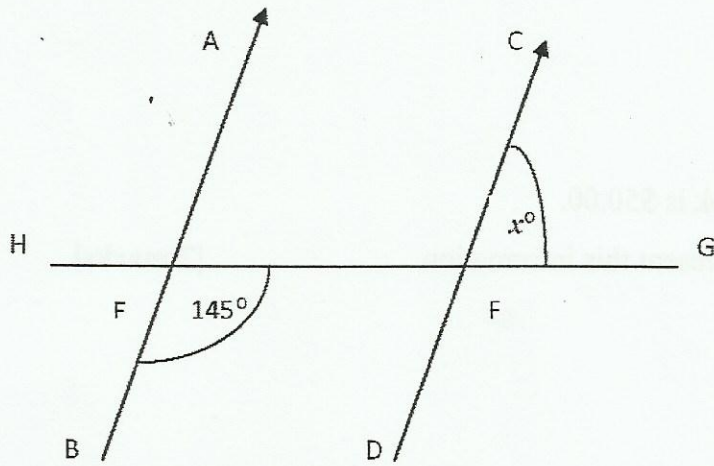
(i) one magazine. [2 marks]

(ii) one book [1 mark]

TOTAL: [6 marks]

6

5. In the figure below, the line AB is parallel to CD.

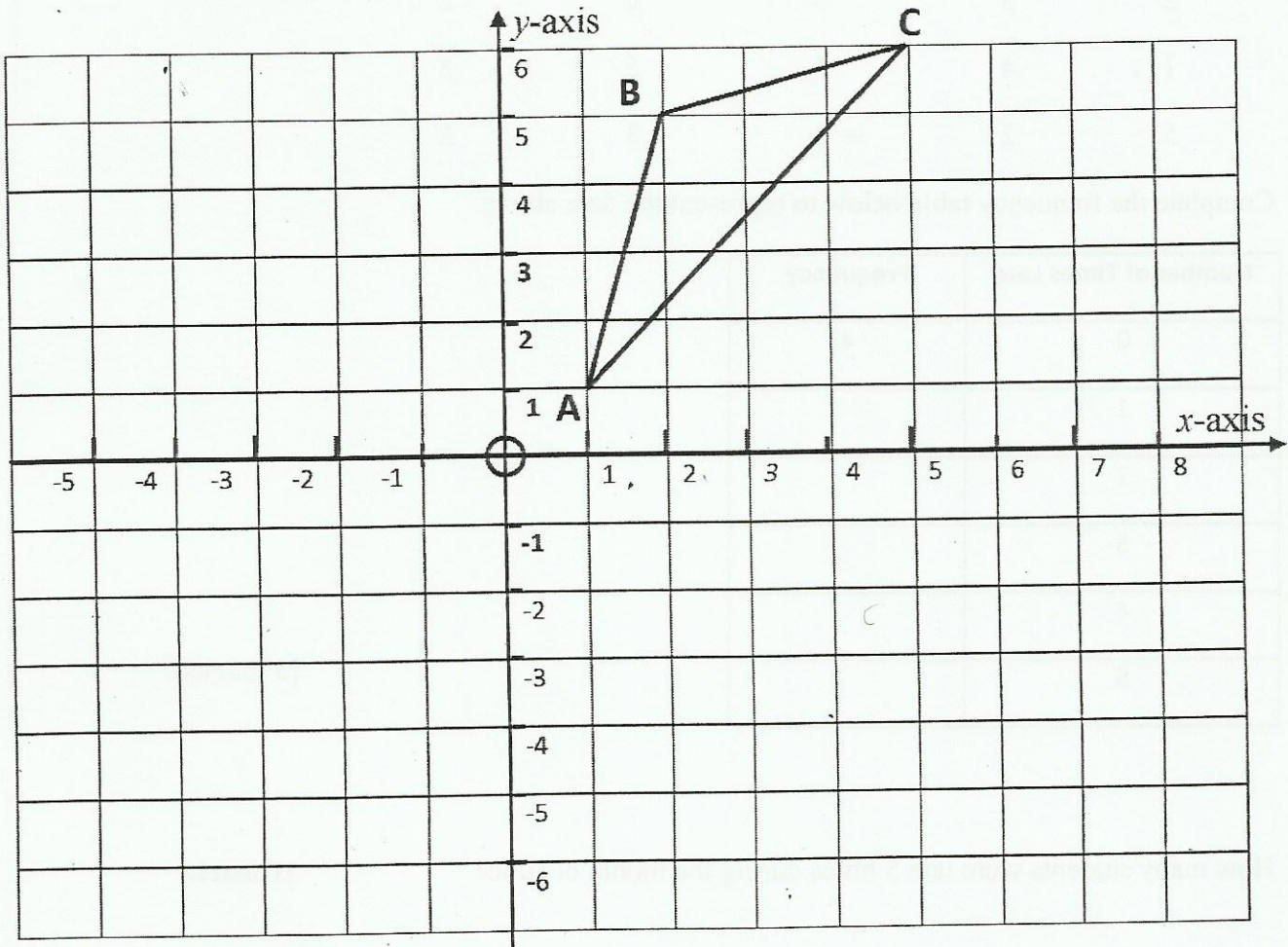The line HG cuts AB and CD at points E and F respectively.

(a) Calculate the size, in degrees, of angle x. Give a reason for your answer.

[2 marks]

(b)   A triangle ABC undergoes a <u>reflection in the x-axis</u> to form its image A'B'C'.

On the diagram below, draw and label the image A'B'C'.

[4 marks]

TOTAL: [6 marks]

8

6. A teacher kept a record of the number of times the twenty-five students in his class were late during the month of June. The results were recorded below.

1	3	4	0	5
0	5	5	1	4
2	3	5	0	2
1	4	0	5	5
5	2	1	3	2

(a) Complete the frequency table below to represent the data above.

Number of Times Late	Frequency
0	4
1	
2	
3	
4	
5	

[3 marks]

(b) How many students were late 5 times during the month of June?   [1 mark]

(c) How many students were late **less than** 3 times for the month of June?   [2 marks]
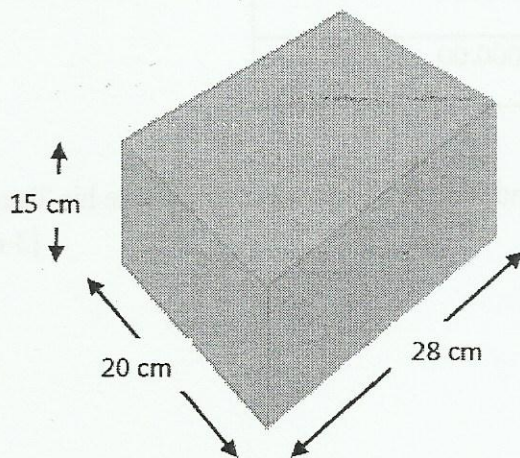
TOTAL: [6 marks]

9

ANSWER <u>ANY TWO (2)</u> QUESTIONS IN THIS SECTION
[Show ALL Working]

7. (a) The diagram below, not drawn to scale, represents a block of cheese measuring 28 cm by 20 cm by 15cm.

15 cm

20 cm

28 cm

(i) Calculate the total surface area, in cm^2 of the block of cheese. **[5 marks]**

(ii) Betty uses <u>half of the block of cheese</u> to make some cheese paste.

Calculate the volume of cheese used. **[2 marks]**

(b) Mr. Grant earned a gross annual income of $ 108 000.00 in 2010.

His tax allowances for 2010 are shown in the table below.

Non-Taxable Allowances	Amount per annum
Personal Allowance	$ 60 000.00
House	$ 18 000.00
Education	$ 20 000.00

(i) If Mr. Grant claims the **full** Education and House allowances, determine his Taxable Income for the year 2010?   [3 marks]

(ii) If Mr. Grant is charged Income Tax at a rate of 25 %, how much Income Tax did he have to pay in 2010.   [2 marks]

TOTAL: [12 marks]

11

8. The equation $y = 2x - 1$ represents the relationship between two variables x and y.

(a) Use the given equation $y = 2x - 1$ to complete the table below.

x	0	2	4	6
y	−1			

[3 marks]

(b) On the answer sheet provided (See page 13), use the axes and scale provided to plot the points from part (a) above and draw the graph of $y = 2x - 1$. [3 marks]

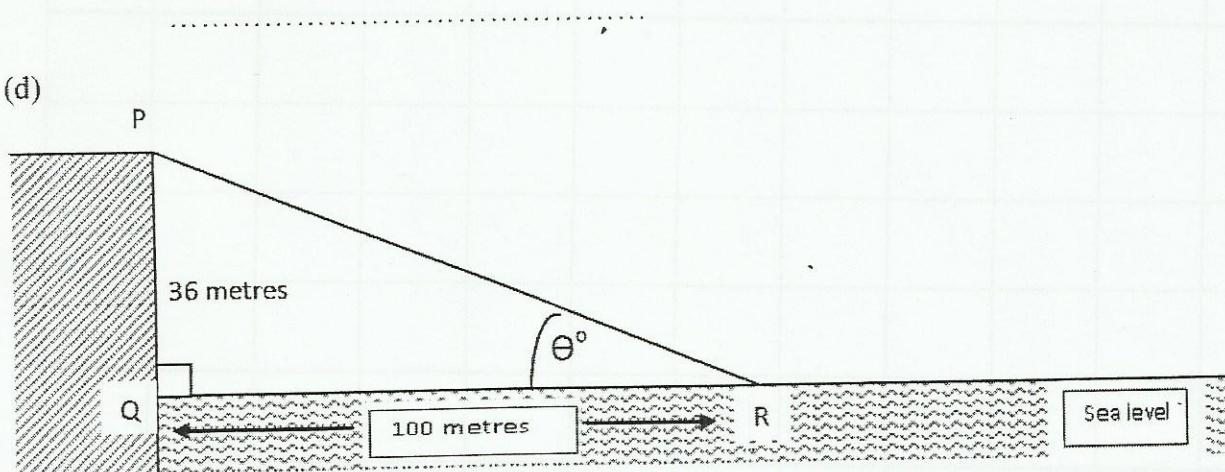(c) (i) Using the same pair of axes in (b) above, draw the graph of $y = 6$. [1 mark]

(ii) State the coordinates of the point of intersection of the graphs
$$y = 2x - 1 \quad \text{and} \quad y = 6$$
[2 marks]

. . . .

(d)

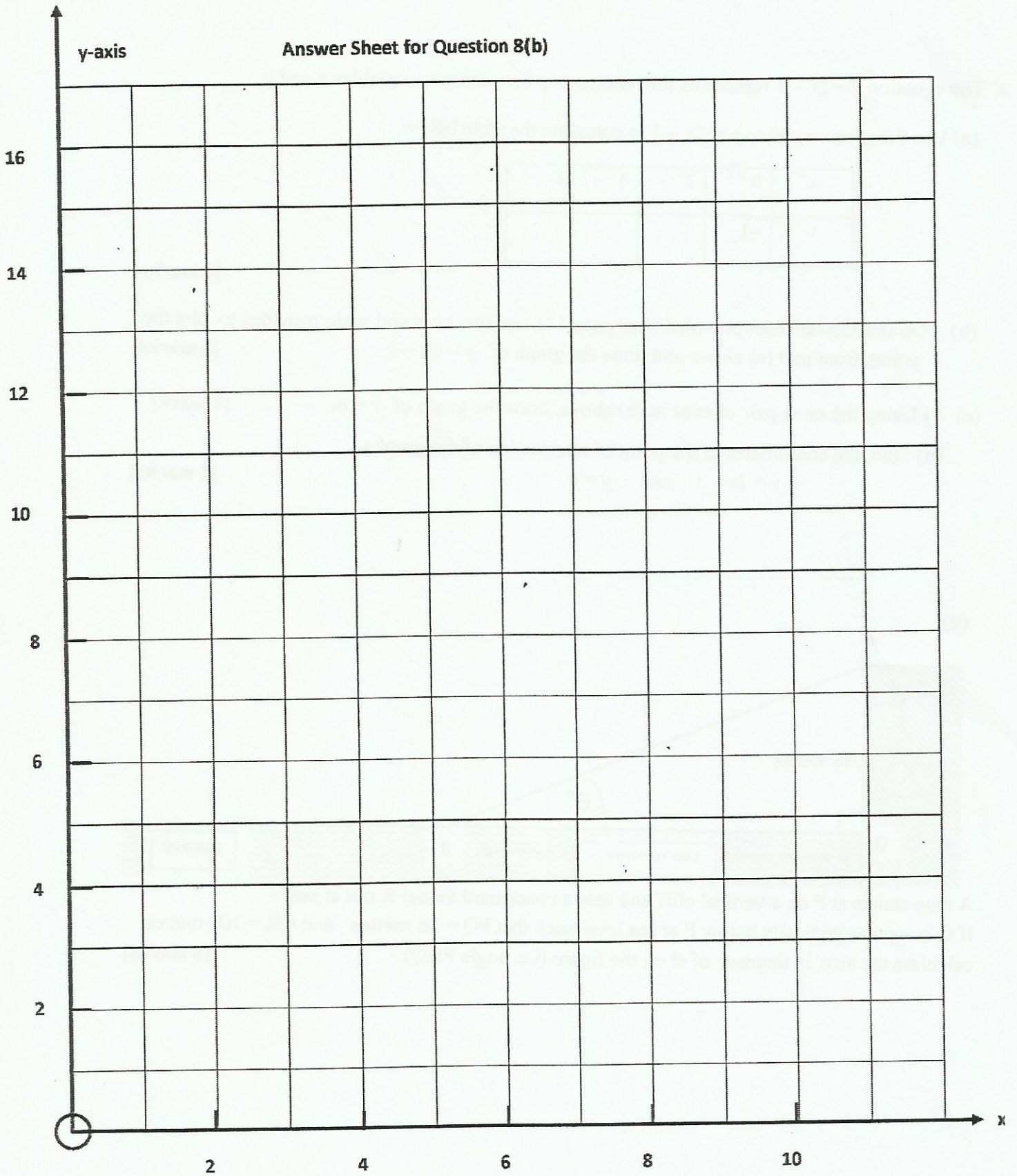A man stands at P on a vertical cliff and sees a coastguard vessel R out at sea.
If Q is a point vertically below P at sea level such that PQ = 36 metres , and QR = 100 metres, calculate the size, in degrees, of θ on the figure (i.e. angle PRQ). [3 marks]

TOTAL: [12 marks]

y-axis

x

16

14

12

10

8

6

4

2

2   4   6   8   10

9. Mrs. Hunte conducted a class survey to find out whether or not to have a class party.

The responses of the 30 students in her class are recorded in the table below.

No. Students in favour	No. students not in favour	No. students with no response
18	10	2

(a)(i) Draw a Pie-Chart to display the results of the survey. **[4 marks]**

Mrs. Hunte decided that she will have the party if more than 50 % of the students agree.

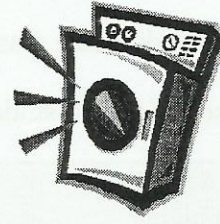(ii) Do you think Mrs. Hunte would have the class party? Give your reason.

[2 marks]

(b) The regular price of a Washing Machine is $3600.00.

It can be bought in either of two ways.

PLAN A: Pay cash with a discount of 20%

PLAN B: Buy on Hire Purchase by making 24 monthly payments of $200.00. No deposit needed.

Calculate:

(i) How much money is saved on the regular price if the washing machine is purchased using Plan A? **[2 marks]**

(ii) The discounted price to be paid using Plan A. **[1 mark]**

(iii) The Hire Purchase Price using Plan B. **[2 marks]**

(iv) How much money is saved by purchasing the washing machine using Plan A instead of Plan B? **[1 mark]**

TOTAL: [12 marks]

END OF TEST