Answer ALL questions.
All working MUST be clearly shown.

1. (a) If $a = -1, b = 2$ and $c = -3$, calculate the value of

(i) $a + b + c$

(1 mark)

(ii) $b^2 - c^2$

(2 marks)

(b) **ONE** muffin costs $\$m$.
THREE cupcake cost $\$2m$.

Write an expression, in terms of m, to represent the following.

(i) the cost of 5 muffins

(1 mark)

(ii) 6 cupcakes

(1 mark)

(iii) Write an equation in terms of m to represent the following information.

The total cost of 5 muffins and 6 cupcakes is \$31.50.

.....

(1 mark)

(c) Work out the value of the following.

(i) $-15 + |-12| - 3$

(2 marks)

(ii) $11 + 10 \div (-2)$

(2 marks)

(iii) $\frac{2(-4-2)^2}{5-(-4)}$

(3 marks)

TOTAL 13 MARKS

2. (a) A shirt with a marked price of \$60 is being sold at a discount of 35%. Calculate:

(i) The discount amount

(1 mark)

(ii) The sale price

(1 mark)

(b) Amaya and her friend bought 20 bracelets at a total cost of $50.

(i) Calculate the cost of one bracelet.

(1 mark)

They sold them on Entrep Friday for $3.50 each.

Calculate

(ii) the amount of money they made after selling all the bracelets.

(1 mark)

(iii) the total profit made.

(1 mark)

(iv) the profit as a percentage of the cost price.

(2 marks)

(c) Maranda earns $1800 per month. She spends $\frac{3}{5}$ on utility bills, foods and personal items and saves the remainder. What percent of her earnings does she save?

(2 marks)

(d) One of Maranda's grocery bills is shown below. Some numbers have been removed and replaced with letters.

Items	Quantity	Unit Price	Total price
Rice	7 kgs	\$2.50	\$17.50
Potatoes	6 kgs	\$1.40	**A**
Milk	3 cans	**B**	\$8.10
Flour	**C**	\$3.20	16.00
Total			\$50
15% Vat (tax)			**D**

Calculate the values of A, B, C and D.

(4 marks)

TOTAL 13 MARKS

3. (a) Simplify the following expressions.

(i) $10x - x + 2x - 4x$

(1 mark)

(ii) $2y + 3(y - 1)$

(1 mark)

(iii) $3b^2 - 6a^2 - 2b^2 - 4a^2 + 5b^2$

(2 marks)

(iv) $\dfrac{-4p^5 \times 5pq}{-2p^3}$

(2 marks)

(b) A school is putting on a Christmas play. A ticket for a child cost $\$x$. An adult ticket costs \$4 ***more*** than a child's ticket.

(i) Write an expression, in x, for the cost of an adult ticket

(1 mark)

Mr. Khan takes his wife and two children to the play.

(ii) Write an expression in **simplest form** for the **TOTAL** cost of the **FOUR (4)** tickets.

(2 marks)

He paid for the tickets with a \$50 bill and received \$2 change.

(iii) Write an equation to represent the cost of the FOUR (4) tickets.

(1 mark)

(iv) Solve your equation and hence determine the cost of a ticket for an adult.

(2 marks)

TOTAL 12 MARKS

4. (a) Solve the following equations for x.

(i) $4(x + 2) = -28$

(2 marks)

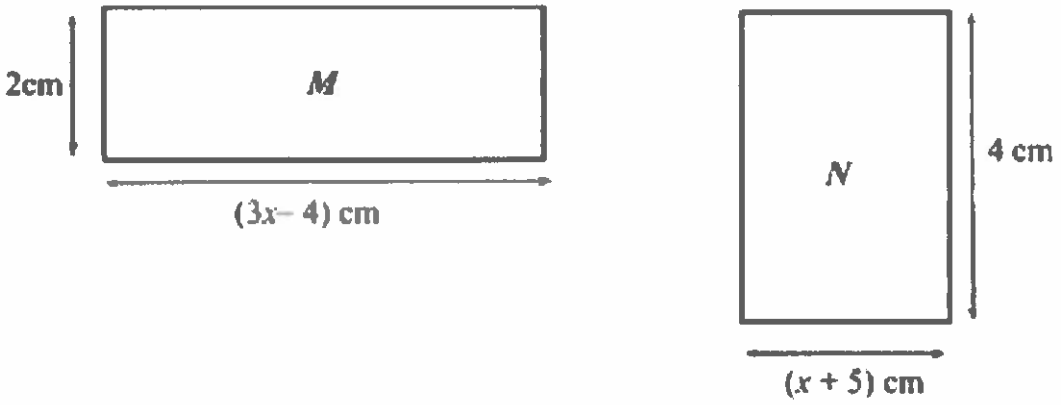
(ii) $6x - 5 = 2x - 21$

(2 marks)

(iii) $3x + 2(x - 4) = 7(x + 1)$

(3 marks)

(b) The diagram below, ***not drawn to scale***, shows two rectangles M and N with their dimensions expressed in terms of x.
(Hint: Area = length ×width)



(i) Write an expression, in terms of x, for the area of rectangle M.

(1 mark)

(ii) Write an expression, in terms of x, for the area of rectangle N.

(1 mark)

The areas of the two rectangles are **equal**.

(iii) Write an equation, in terms of x, to represent this.

(1 mark)

(iv) Hence solve the equation for x.

(2 marks)

TOTAL 12 MARKS

5. (a) (i) The following sign is displayed on a highway. Write an inequality, in x, to describe the safe driving speeds according to the sign.

.....

(1 mark)

(ii) Sri who is not yet 22 years old is 5 years younger than Mina. If Mina is k years old, write an expression, in k, to represent Sri's age.

.....

(1 mark)

(b) Solve for x.

(i) $3x - 2 \leq 10$

(1 mark)

(ii) If x is a positive integer, list **ALL** the possible values of x. **(1 mark)**

(c) Solve for x.

(i) $3 - 2x < 7$

(2 marks)

(ii) If x is an integer, state the **SMALLEST** possible value of x.

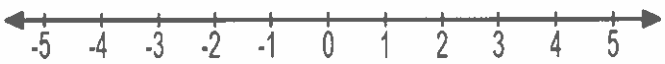
(1 mark)

(d) Solve for x.

(i) $2(x - 6) + 3x \leq 8$

(2 marks)

(ii) Show your solution on the number line below.



(1 mark)

(e) A phone company charges \$30 per month plus \$2 per GB of data used. The total monthly bill must be less than \$60.

(i) Write an inequality to represent the number of gigabytes, x, that can be used.

(1 mark)

(ii) Solve for x and state the number of gigabytes that can be used.

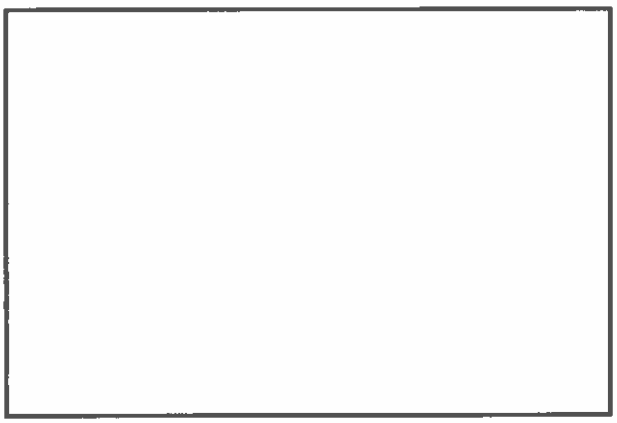
(2 marks)

TOTAL 13 MARKS

6. (a) In a class of 32 students, **ALL** students study Spanish (S) and 20 students study French (F).

(i) Draw and complete a Venn diagram to represent this information.

(3 marks)



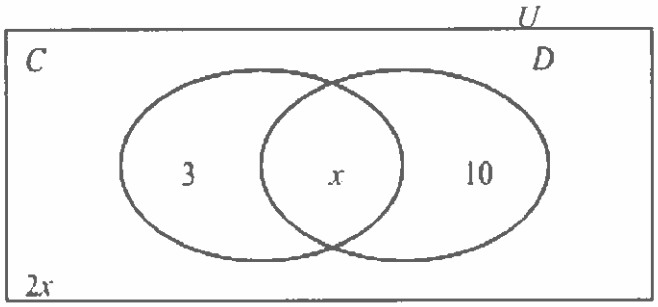
(ii) Determine the number of students who study French only.

(1 mark)

(iii) Write using set notation, the relationship between sets F and S.

(1 mark)

(b) The completed Venn diagram below shows the number of students in Form 5A3 who have visited Canada (C) or Dominica (D).



(i) How many students have visited Dominica **ONLY**?

(1 mark)

(ii) Write an **expression**, in terms of x, to represent the **TOTAL** number of students who have visited Canada.

(1 mark)

(iii) Given that there are 25 students in Form 5A, calculate the value of x.

(2 marks)

(iv) Hence, write down the **number** of students in each of the following subsets:

(i) $C \cup D$

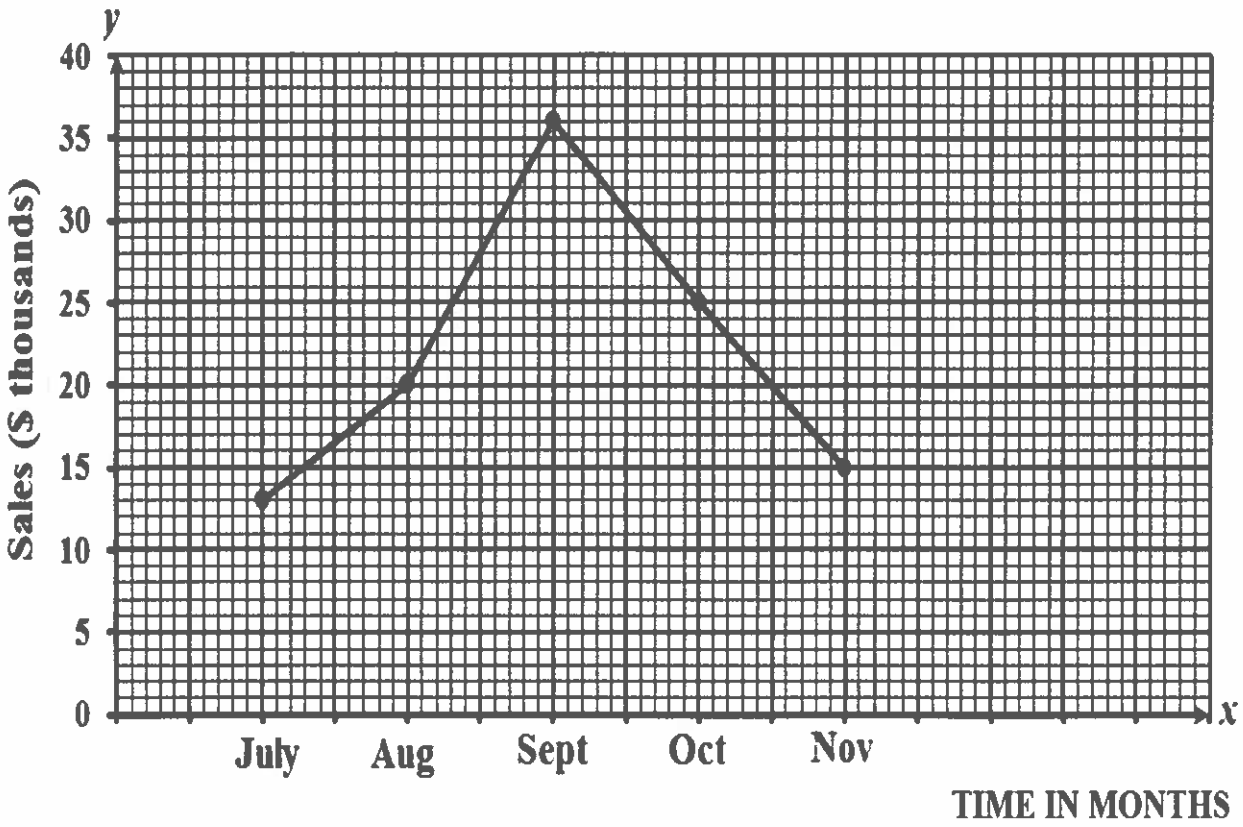
(ii) $C \cap D$

(iii) $(C \cup D)'$

(3 marks)

TOTAL 12 MARKS

7. The line graph below shows the monthly sales, in thousands of dollars, at a car dealership from July to November 2014.



(a) Complete the table below to show the sales for each month.

Month	July	August	September	October	November
Sales in $ Thousands	13		36		

(3 marks)

(b) Between which **TWO** consecutive months was there the **GREATEST** increase in sales?

.....and.....

(1 mark)

(c) Between which **TWO** consecutive years was there the **SMALLEST** decrease in sales?

.....and.....

(1mark)

(d) Calculate the mean monthly sales for the period July to November 2014.

(2 marks)

(e) The TOTAL sales for the period July to December was $130 000.

(i) Calculate the sales, in dollars, for December.

(1mark)

(ii) Complete the line graph to show the sales for December.

(2marks)

TOTAL 10 MARKS

END OF EXAM