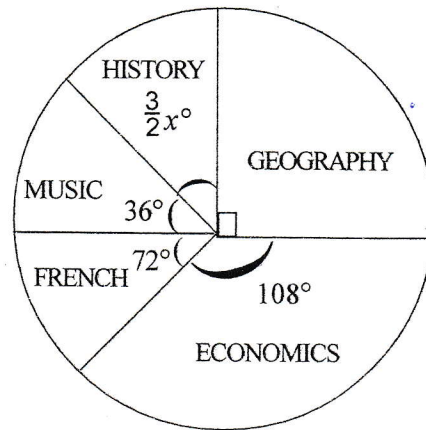Answer **four** questions **only**.

All questions carry equal marks.

*All working must be clearly shown. Marks will **not** be awarded for correct answers without corresponding working.*

1.   In an experiment, a sample of items with given numbers was selected for testing as follows:
$P = $ {item numbers divisible by 4 between 205 and 235};
$Q = $ {item numbers which are multiples of 6 between 205 and 235}.

(a)   List the members of sets P and Q.

(b)   Find:
(i) $P \cup Q$;
(ii) $P \cap Q$.

(c)   How many items were selected?

(d)   Which item numbers selected are divisible by 4 and 6?

2.   (a)   Solve: $1 - 2q = 2 + \dfrac{q}{3}$.

(b)   Find the highest common factor of the following numbers: 20, 28 and 36.

(c)   The base of an isosceles triangle is 9 cm and one of the other sides is x cm.
(i)   Illustrate the information in a diagram.
(ii)   If the perimeter of the triangle is 21cm, find the product of the other two sides.

3.   (a)   If $x = \frac{1}{5}$ and $y = -\frac{1}{2}$, find the value of $2x - 3y$.

(b)   Simplify: $4\frac{3}{4} + 8\frac{1}{5} - 9\frac{1}{2}$.

(c)   A bank granted Mr Obodan a loan of GH¢ 720.00. If the rate is $24\frac{1}{2}$ % per annum simple interest, calculate the
(i)   interest at the end of the year;
(ii)   total amount he had to pay at the end of the year;
(iii)   remaining balance after paying GH¢ 500.00 at the end of the year.

4.   (a)   If $P = \dfrac{Q}{A + B}$, express B in terms of P, Q and A.

(b)   Afia and Esi contributed GH¢ 2,700.00 and GH¢ 1,800.00 respectively to start a business. They agreed to share the profit in the ratio 7 : 5 respectively. If the profit made was GH¢ 900.00, calculate:
(i)   the total contribution;
(ii)   Esi's share of the profit;
(iii)   Afia's share as a percentage of the total profit.

5. (a) The length of the minute hand of a wall clock is 7 cm. What area will the minute hand cover after one hour.   [Take $\pi = \dfrac{22}{7}$]

(b) The pie chart shows the favourite subjects of 200 students in a school.

NOT DRAWN TO SCALE

(i)   Find the value of x.
(ii)   Calculate the percentage of students whose favourite subject is economics.
(iii) If a student is chosen at random, find the probability that his subject is French.

6. (a) A Ship sails due north from point **P** to a point **Q**, 4 km away. It then sails on a bearing of 090° to a point **R**, 3 km from **Q**.
(i)   Illustrate the information in a diagram.
(ii)   Find the length **PR**.

(b) Mrs Adjei bought goods worth GH¢ 104,000.00 to sell in her shop. After taking stock at the end of the month, she realized that only GH¢ 4,059.00 worth of goods were left in the shop. Find the worth of goods sold.

(c) The table shows the average monthly rainfall at Samproso from March, 2014 to September, 2014.

Month	March	April	May	June	July	August	September
Rainfall (mm)	154	145	277	450	267	142	98

Use the table to answer the following:
(i)   Find the average rainfall for the last three months;
(ii)   Which month recorded the **least** amount of rainfall?
(iii) What is the total amount of rainfall recorded over the period?

END OF ESSAY TEST