MATHEMATICS HOMEWORK EXERCISES FOR S3 (ALL)

Q1. Solve the inequality: $\frac{x}{2} - \frac{x+1}{3} + \frac{x-2}{4} > 0$ and show the solution set on a number line.

Q2. Find the base n if $201_n - 34_n = 134_n$ where $n \in \aleph$

Q3. The functions $f(x)$ and $g(x)$ are defined as follows $f(x) = \frac{1}{2x-6}$ and $g(x) = x^2 - 1$ find the value of x such that $fog(x)$ is meaningless.

Q4. The lines $ax + 2y = 3$ and $ax - by = 5$ intersect at (1,2) . find **a** and **b**

Q6. Given that $\frac{1}{3x-4} + \frac{x}{x+1} = 1$ solve for x.

Q7. Two numbers are such that their sum divided by 4 is equal to 14. If the greater number is increased by 24, the result equals three time the smaller number. Find the two numbers.

Q8. The sum of the squares of three consecutive integers is 110. Find the integers.

Q9. Find two consecutive odd integers whose product is 255.

Q10. Two years ago a man was six times as old as his son. In 18 years he will be twice as old as his son. i) write this problem as simultaneous linear equation.

ii) Solve the resulting problem to find the ages.

Q11. Solve the following equation $\sqrt{x} - \frac{2}{\sqrt{x}} = 1$

Q12. By shading the unwanted regions, show the region which satisfies the inequalities: $\begin{cases} x + y \leq 3 \\ y > x - 4 \\ y + 7x \geq -4 \end{cases}$

Q13. Suppose a set has $4^{(n-3)}$ subsets, how many elements are in this set?

Q14. In a class of 45 students, 7 like maths (M) only, 2 like physics (P) only, 3 like chemistry (C) only. 18 like maths and phy, 16 like phy and chem , 14 like maths and chem. The number of students who like none of the three subjects is half the number of those who like all the three subjects. a) Show the above information in a venn diagram

b) Determine the number of students who: i) like none of the three subjects

ii) Don't like mathematics

Q15. Solve the inequality $-x^3 + 5x^2 - 7x + 3 \leq 0$