HeLP
Holistic eLearning Platform
Schools

TOPIC: LINEAR PROGRAMMING –Lesson 4

Finding and interpreting the optimum solution of a set of linear inequalities

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LEARNING OUTCOMES

- By the end of this lesson you should be able to find and interpret the optimum solution of a set of linear inequalities in two unknowns

Activity (UNEB item)

An investor wants to buy 2 types of generators A and B. Generator A needs $2m^2$ of space and B needs $3m^2$ .The available space is only $60m^2$ .The cost of A is $2000 and that of B is $10,000 .The investor has $80,000 to be spent.

a) Write mathematical statements that show the relation between the two generators.

b) Show the feasible region of the relation on the Cartesian plane.

c) Use the graph to find the greatest number of generators of both types A and B that the investor can buy using the minimum amount of money .

Activity(UNEB item -2024)

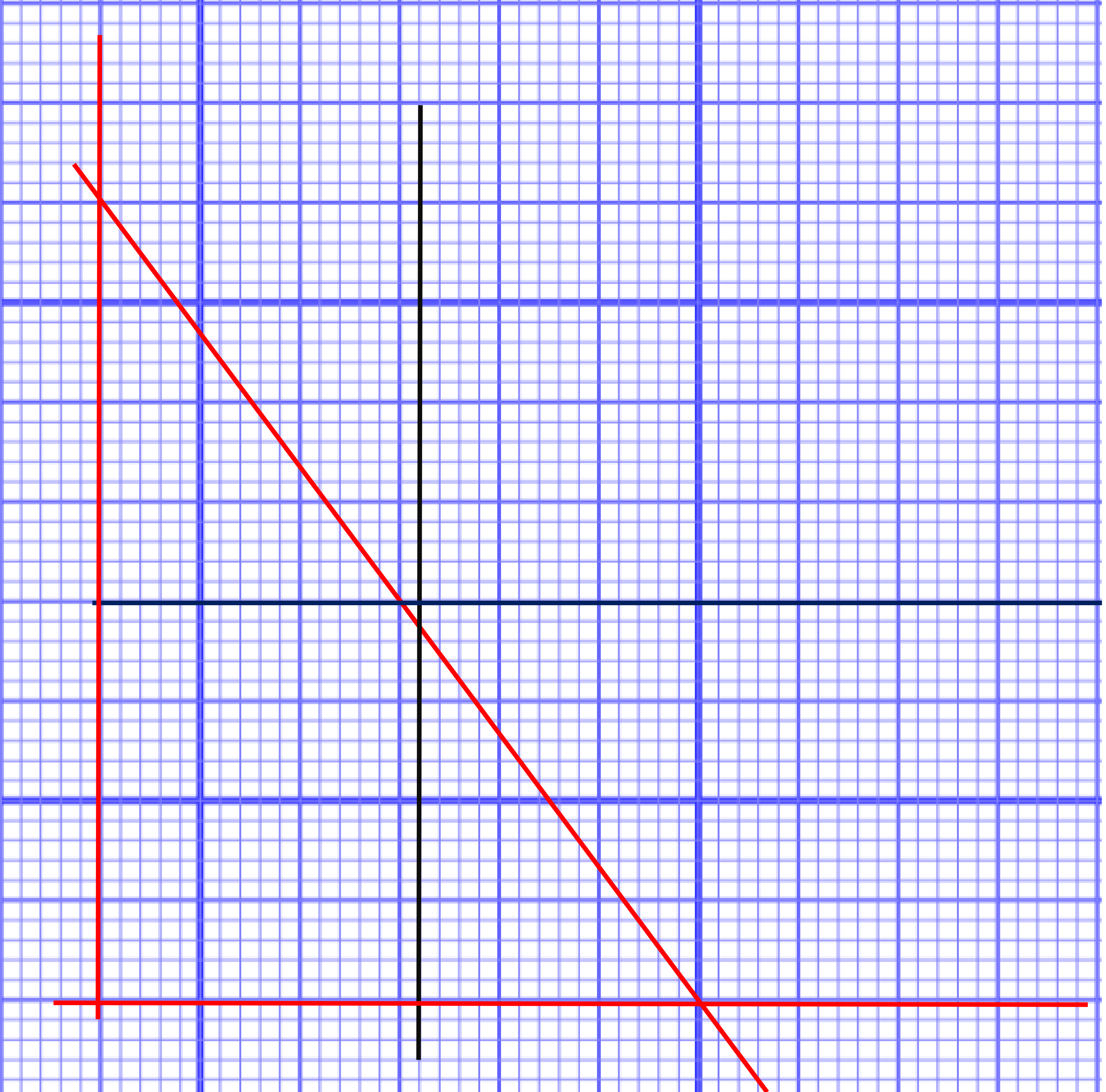
A tailor makes school uniforms for boys and girls. The tailor makes at least 80 sets of uniforms for boys and not more than 100 sets of uniforms for girls. Each set of uniform for boys requires 4 m of material and each set of uniform for girls requires 3 m of material. The tailor has at most 600 m of material to use. The tailor makes a profit of Shs8,000 on each set of boy's uniform and Shs6,000 on each set of girl's uniform. The tailor is not sure of the number of sets of uniforms to make in order to maximise profit.

Task:

(a) Express the tailor's conditions as inequalities and equations.

(b) Show the feasible region of the tailor's conditions on a Cartesian plane.

(c) Help the tailor to determine the possible number of sets of boys' and girls' uniforms that should be made to maximise profit. Hence, state the maximum amount of money the tailor is likely to make.



Activity-Uneb sample

You have friends who rear cows and goats. During the festive season, they want to sell at most 10 of their cows and at least 8 of their goats. They also want to ensure that the number of goats they sell are less than twice the number of cows. They also do not want to sell more than 20 animals all together. They wish to maximise sales by selling each goat at Shs200,000/= and each cow at Shs1.5 millions but they do not know the number of goats and cows to sell to fulfil their wish.

(a) write mathematical statements that show the relation between the cows and goats.

(b) Show the feasible region of the relation on the Cartesian plane.

(c) Help your friends to determine the maximum amount of money they will possibly make from the sale of cows and goats.