

**Q.1.** A pet store specialises in birds.

- Over the past two weeks, it sold at least three more male birds than female birds. However, it sold no more than 27 birds, in total.
- Males were sold for \$ 115, and females were sold for \$90.

What combinations of sales of male and female birds would have minimised or maximised the pet store's revenue?



**Sol.**

**Step.1.** Define the variables.

**Step.2.** Describe the restrictions on the variables in this situation. (Domain & Range)

**Step.3.** Write a system of inequalities that models this situation.

**Step.4.** Graph the system to determine the solution set.

**Step.5.** Write an objective function that shows how the variables are related to the quantity to be optimised.

**Step.6.** Evaluate the objective function by substituting the values of the coordinates of each vertex.

**Step.7.** Compare the results and choose the desired solution.

**Q.2.** Over the past week, Clearwater Hair Salon got at least five times more female customers than males customers. In total, it served no more than 30 customers.

Each female customers is charged \$35 whereas each male customer is charged \$ 25.

What combinations of male and female customers would have minimised or maximised the the salon's revenue?



**Sol.**

**Step.1.** Define the variables.

**Step.2.** Describe the restrictions on the variables in this situation. (Domain & Range)

**Step.3.** Write a system of inequalities that models this situation.

**Step.4.** Graph the system to determine the solution set.

**Step.5.** Write an objective function that shows how the variables are related to the quantity to be optimised.

**Step.6.** Evaluate the objective function by substituting the values of the coordinates of each vertex.

**Step.7.** Compare the results and choose the desired solution.

**Q.3.** Create, and then solve an optimisation problem.