

Problem 1:

NYU Tandon is undergoing repairs in order to renovate their facilities. For this task they need to hire Builders and Electricians.

Based on the Nature of the work being performed it is necessary that the number of Builders is equal or larger than the number of Electricians. However, the Union will not allow NYU to hire more Mechanics than twice the number of Electricians.

A Mechanic is able to complete 120 tasks per week and electricians are able to complete 150 tasks per week.

There is a total amount of 30 Electricians available for hiring and 20 Mechanics.

Formulate a linear programming model for how many workers of each type should they hire in order to get the most work done in a week.

Problem 2:

Renovations at NYU's second floor are almost complete and the last stage to finish the job is painting. The contractor has to buy enough paint to cover at least 480 m^2

Provider A offers buckets of paint that are enough to cover 6 m^2 for 1 U\$\$. Provider B offers larger buckets of paint that are enough to cover 8 m^2 for 1.20 U\$.

In order to help local businesses, the university doesn't want to buy more than 75 buckets from the same provider.

If the maximum budget for painting is \$120,

- a) **Formulate** a linear programming model to figure out the most cost-effective solution.
- b) Solve the linear programming model graphically