**Activity 1.1.10 Additional Linear Programming Problems**

Solve each problem below using the seven-step linear programming procedure.

1. A local artist working at the town fair makes caricatures and portraits. The caricatures cost $4 to make while the portraits cost $10 to make. It takes 20 minutes to make a caricature and 30 minutes to make a portrait. The artist has at most $360 for supplies and can stay no more than 20 hours at the fair. She would like to charge $10 for a caricature and $20 for a portrait. She is going to donate all proceeds of the weekend fair to a local charity. How many caricatures and how many portraits should she make in order to maximize the donation for the charity?
2. A student is making two types of wallets out of duct tape. She is going to make a tri-fold wallet and a bi-fold wallet. The tri-fold wallet takes 1 hour to finish and the bi-fold wallet takes ½ hour to finish. Each tri-fold wallet costs $1 to make and each bi-fold wallet costs $0.75 to make. The tri-fold wallet sells for $10 and the bi-fold wallets sell for $8. If the student has at most $24 to purchase materials and no more than 20 hours throughout the week to make wallets, what combination of tri-fold and bi-fold wallets should she make and sell to maximize profit?

1. For Valentine’s Day, the student council is going to sell single roses and chocolate hearts. The council must first buy roses and hearts to sell. Each rose costs $0.75 while each chocolate heart costs $0.50 at the store . The council has at most $270 to spend on this fundraiser.  On average, it takes two minutes to prepare a rose by wrapping it with a red ribbon and writing a name on the ribbon. On average, it takes one minute to prepare a chocolate heart by wrapping it and writing a name on the card.  The student council has at most 10 hours to prepare the roses and chocolate hearts.  If the student council will make a profit of $0.80 on each rose and $0.60 on each chocolate heart, how many roses and chocolate hearts should they buy, prepare and sell to maximize profit.