1. Sara is an artist. She makes watercolors and pastels. She is preparing for a craft fair. She has time to make up to 16 paintings. The materials for one watercolor painting will cost her $15. The materials for one pastel painting will cost her $5. Sara only has up to $180 to spend on materials. She makes a profit of $100 on each watercolor and $40 on each pastel.

    Question: How many watercolor paintings and how many pastel paintings should Sara paint in order to maximize her profit?

    a) Assign variables…if you get stuck look at the question, what are the two things you are trying to figure out?

    b) Write the system of linear inequalities that represents the constraints. There are four but two of them are just implied (the other two deal with time and $)

    c) Write the objective function. Profit = _____

    d) Determine how many watercolors and pastels she should make to maximize profit. Show work!

Graph the feasible region (you may need to use a scale) and identify the corner points to help you answer part d:
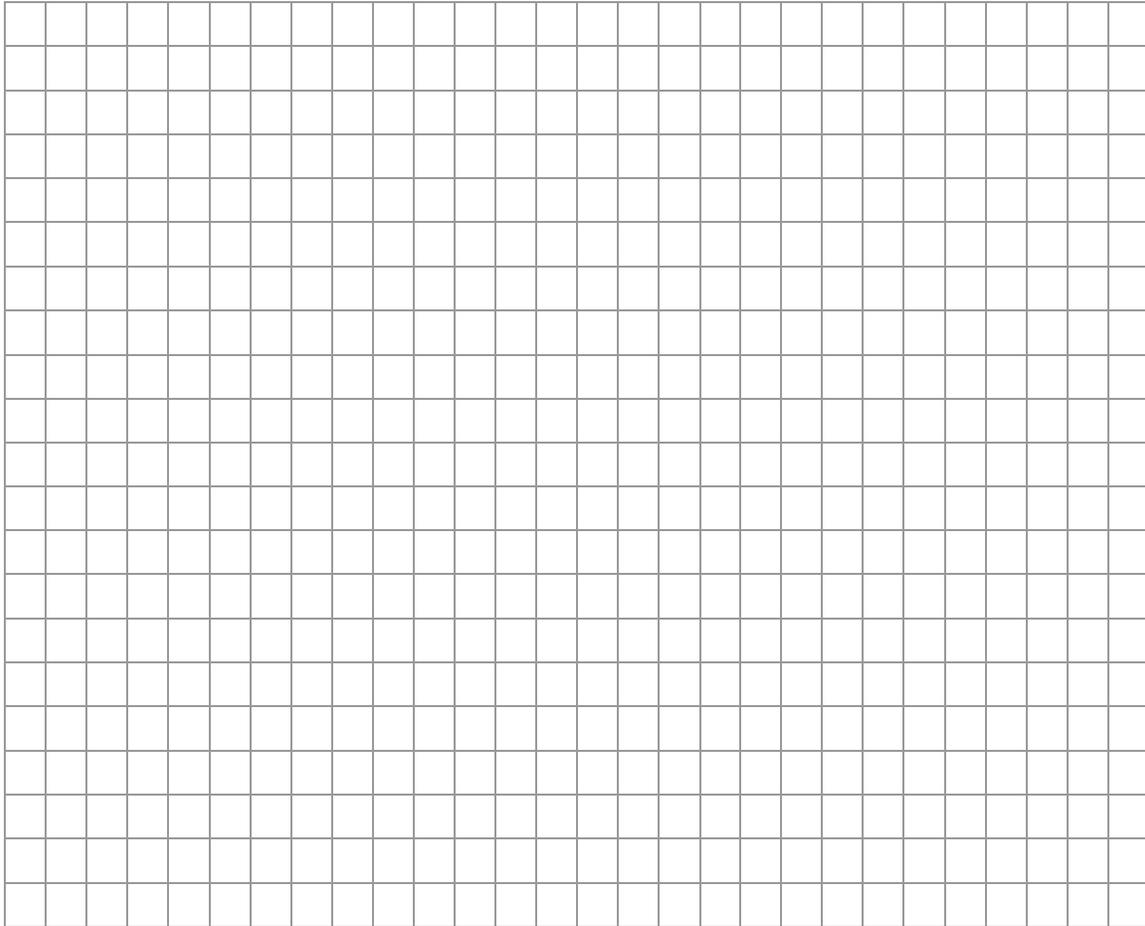
2. A ski manufacturer makes two types of skis and has a fabricating and a finishing department.
    The table below shows that time required in each department.

	Time to Fabricate (hrs)	Time to Finish (hrs)
A Pair of Downhill	6	1
A Pair of Cross-country	4	1

The fabricating department has 108 hours of labor available per day.
The finishing department has 24 hours of labor available per day.
The company makes a profit of $40 on each pair of downhill skis and a profit of $30 on each
pair of cross-country skis.

Question: How many downhill skis and how many cross-country skis should be made in
order to maximize profit?

a) Assign variables…if you get stuck look at the question, what are the two things you are
    trying to figure out.

b) Write the system of linear inequalities that represents the constraints. There are four!
    *Hints: Two of the inequalities are just implied. One of the inequalities deals with the
    restriction for fabricating time (108 hrs) and the other deals with the restriction for
    finishing time (24 hrs)*

c) Write the objective function. Profit = _____

d) Determine how many pairs of each ski they should make to maximize profit. Show work!

Graph the feasible region (you may need to use a scale) and identify the corner points to help you answer part d: