Practice Set - Linear Programming Applications

Breakfast Bars **In Exercises 10–13, use the following information.**
Your factory makes fruit filled breakfast bars and granola bars. For each case
of breakfast bars, you make $40 profit. For each case of granola bars, you
make $55 profit. The table below shows the number of machine hours and
labor hours needed to produce one case of each type of snack bar. It also
shows the maximum number of hours available.

Production Hours	*Breakfast bars*	*Granola bars*	*Maximum hours*
Machine hours	2	6	150
Labor Hours	5	4	155

10. Write an equation that represents the profit (objective function).

11. Write a system of inequalities that represents the constraints.

12. Sketch the graph of the constraints found in Exercise 11 and label the vertices.

13. How many cases of each product should you make to maximize profit?

Bakery A bakery is making whole-wheat bread and apple bran muffins. For
each batch of bread they make $35 profit. For each batch of muffins they
make $10 profit. The bread takes 4 hours to prepare and 1 hour to bake. The
muffins take 0.5 hour to prepare and 0.5 hour to bake. The maximum
preparation time available is 16 hours. The maximum baking time available
is 10 hours. How many batches of bread and muffins should be made to
maximize profits?