Name: _____ Date: _____

Chapter 2 Problems of the Week

1. A grocery store receipt lists the following items: 2.5 kg of flour for $6.99; 200 g of walnuts for $3.99, 2 kg of white sugar for $3.49, 1 kg of brown sugar for $2.99, 500 g of butter for $3.99, 500 g of chocolate chips for $3.99, and 1 dozen eggs for $3.49.

a) A cookie recipe lists the following ingredients by mass: 0.5 kg flour, 0.25 kg butter, 0.7 kg white sugar, 0.8 kg brown sugar, 2 eggs, 0.4 kg chocolate chips, and 0.02 kg walnuts. One batch of dough makes 60 cookies. If you want to use as much of the ingredients as possible, how many cookies should you make? Explain your thinking.

b) If the cookies were sold for 75¢ each, what is the maximum profit you could earn using the ingredients you bought? Show your work.

2. A family decided to keep track of the mass of the materials they took to a recycling centre. During two average months, they recorded the following data: 20.7 kg, 5.1 kg, 11.4 kg, and 2.1 kg. Predict the total mass of recycling materials over the period of one year. Explain your thinking.

3. A clothing designer needs to purchase material for an outfit. From the material, he must cut out shapes with the following dimensions: one 0.9 m square, one 0.7 m by 2.3 m rectangle, and one 0.3 m by 0.5 m rectangle. The material is 1 m wide and costs $5.60 per square metre.

a) Make a sketch and show how to cut the shapes in order to minimize waste. Label the measurements.

b) How much material will he need?

c) How much will the material cost before taxes?

4. The players on a basketball team measured their height and mass. The total height of the 11 team members was 21.2 m. The total mass of the team was 992.25 kg.

a) By the end of the year, the team's total height had increased by 1.3 m and its total mass increased by 110.13 kg. If the team members' growth continued at this rate for another two years, what would be the average height and mass of the players?

b) Is this result possible? Explain your thinking.

5. A cabinet maker is making drawers whose inside measurements are 22.1 cm × 32.3 cm × 43.4 cm. If the box will be made from plywood sheets whose measurements are 1.2 m × 2.4 m × 0.02 m, how could she cut the wood in order to minimize waste?

a) Make a sketch and show where to make the cuts. Label the measurements.

b) What is the maximum number of drawers that could be made from one plywood sheet? Explain your thinking.