Hay Bale Farmer
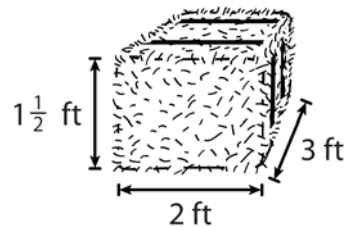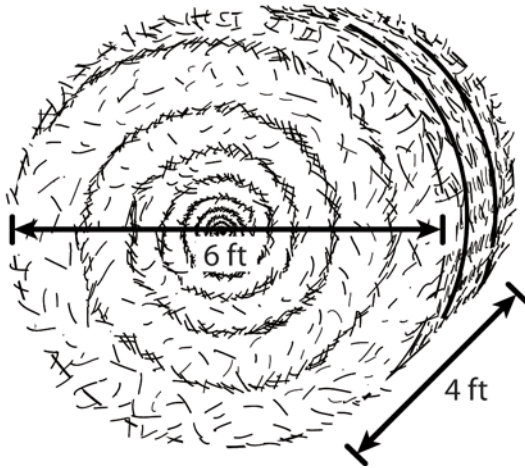
NAME_____

You are able to purchase one of the two different types of hay bales shown below: round or square. The round hay bale is 4 feet long and has a diameter of 6 feet. The square hay bale has a width of 2 feet, height of $1\frac{1}{2}$ feet, and length of 3 feet. **Note:** You must purchase whole bales.

1. Approximately how many square bales would you need to purchase to have the same amount of hay as one round bale? Based on this result, do you think it's better to buy square bales or round bales? Why?

2. You need 16,000 ft^3 of hay to last through the year. Determine how many of each hay bale you would need to purchase if you purchase either all square bales or all round bales. If one round bale costs $20 and one square bale costs $2.75, which will be the better value?

3. Your barn measures 36 feet long, 36 feet wide, and 12 feet high. What is the greatest number of round bales that will fit in the barn? square bales? Show your model for each type of bale. Which type of hay bale will allow you to fit a greater volume of hay in the barn?

4. If you purchase enough round bales to have 16,000 ft^3 of hay, you will need to store some outside in the pasture. How many will not fit in the barn and need to be stored? Round bales stored outside typically lose 10% due to mold. How much hay will be lost, in cubic feet?

5. Which type of hay bale would you choose to purchase? Why? Use mathematics to explain your choice.