

Please write answers in complete sentences on separate paper. This will be part of the write up that your group will turn in when finished.

Step 1: Design

You are to design the Food Court at a local fair. You will choose the booths that will be used and their placement. You will also calculate the rent that the fair will receive for each booth.

Requirements:

The area to fill is a 90 foot by 70 foot rectangle.

You must include at least one of each size booth.

There must be a 10 foot by 15 foot restroom.

Every booth must have a walkway on at least one side.

Walkways must be at least 5 feet wide.


The booth sizes:

Type A 10 foot by 10 foot

Type B 10 foot by 20 foot

Type C 20 foot by 20 foot

1. What is the area of the entire Food Court?
2. What is the individual area of each type of booth?
3.
 - a) What is the largest number of Type A booths that would fit in the food court if you only used that size? Explain or show how you get your answer.
 - b) What is the largest number of Type B booths that would fit in the food court if you only used that size? Explain or show how you get your answer.
 - c) What is the largest number of Type C booths that would fit in the food court if you only used that size? Explain or show how you get your answer.
4. Choose the number of each type of booth and the layout of the Food Court using the requirements above. Draw the Food Court on the paper provided. Make sure that the drawing is drawn to scale. Include a scale key in your drawing. For example:

 = 10 feet
5. How many of each type did you choose?
6. What is the total area taken up by the booths?
7. What is the total area of the walkways?
8. Do your answers from #6 and #7 add up to the total area of the Food Court? Explain your answer.

Step 2: Rent

You will now calculate the rent that the fair will receive from your design.

The rents for the booths:

Type A	\$85/day
Type B	\$120/day
Type C	\$180/day

1. How much money will the fair receive for one day for all of the Type A booths in your design?
2. How much money will the fair receive for one day for all of the Type B booths in your design?
3. How much money will the fair receive for one day for all of the Type C booths in your design?
4. Calculate the rent for five days for all of the booths in your design.

Step 3: Next Year

The fair is going to raise the rents for Type A and Type B booths for the next year by \$15. The fair is also going to raise the rents for Type C booths for the next year by \$20.

1. What will the new daily rents be for Type A, Type B and Type C booths next year?
2. Calculate the rent using next year's numbers for five days for all of the booths in your current design.
3. Discuss any changes that you might make to your booth choices and layout design for the next year. (You must make some changes.)

What to turn in: (one report per group)

Your report should include the following:

1. **Introduction:** Explain what the activity was asking you to do.
2. **Answers to Questions and Analysis:** Include answers to the questions asked.
3. **Answer or response to each part:** Write a paragraph answer each of the parts: How many of each type of booth will you have? (Include the scale drawing that you made.) What will the rent be for the 5 day fair this year? What will the rent be for next year's fair?
4. **Conclusions:** Explain in a few sentences what math you learned here, what particular concepts and problem solving strategies helped you solve this problem, how can you connect this to anything outside the classroom?
5. **Scratch paper and drafts:** attach any extra scratch paper, including drawings