

# Planning a Concert

A charity is going to raise money by having a concert. You are helping to plan the concert. You will need to decide where the concert should be and how much the tickets should cost. You will also need to predict how much profit the charity will make from the concert.

The charity has done some research about ticket prices. They chose 100 people at random and asked them, "What is the most that you would pay for a ticket to a charity concert?".

Here are the responses:

ticket price (\$)	number of people who would pay at most this much
10	15
20	22
30	13
40	15
50	17
60	15
65	3

Here are some questions to guide you as you make your plan:

- Based on the information from the survey, how much should tickets cost?
- What kind of performer do you want to have at the concert — a local band? A famous singer? An orchestra? A "battle of the bands" featuring many different groups? More famous performers may draw a larger crowd, but they may also need to be paid more. Do research to find out what a fair amount of money would be.
- Research some possible concert venues. How much would they cost to rent, and how many people can they hold?
- If the tickets are sold at the price you recommend, which venue will create the most profit?

- Should the charity also sell other things at the concert, like food or T-shirts? If you think so, you can also recommend this to the charity and predict how much profit they'll make.

Create a presentation to explain your plan and your reasoning to the charity's directors. Include an estimate of the costs and profit.

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You can use this information to find out which ticket price will bring in the most money. Here is how:

- First, figure out how many people would buy a ticket for \$10, how many would buy a ticket for \$20, and so on.
- Then create a graph with the ticket price as the independent variable and the number of people who buy tickets as the dependent variable. Plot the points you found in the first step, and then find a linear equation that shows how the number of people depends on the ticket price.
- The amount of money that the charity will make from ticket sales is the ticket price multiplied by the number of people who buy tickets. Use the linear equation you found to create a quadratic equation that shows how the price of tickets affects the amount of money the charity will make from the tickets.

After you have decided on a ticket price, here are some other questions to think about:

- What kind of performer do you want to have at the concert — a local band? A famous singer? An orchestra? A “battle of the bands” featuring many different groups? More famous performers may draw a larger crowd, but they may also need to be paid more. Do research to find out what a fair amount of money would be.
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