

Background

The file 'School fete.xls' is a financial model. It models the amount of money which the PTA may make at the annual school fete.

It includes possible ways of making money (income) at the fete, such as selling teas and cakes.

It also shows the costs (expenditure) of running the fete.

The model calculates the profit or loss being made when specified numbers of people visit the fete.

The model calculates the total profit/loss by using this formula.

$$\text{profit or loss} = \text{income} - \text{expenditure}$$

The amount of money taken, and any overall profit, will depend on the number of people coming to the fete and spending money. The more people that come, the more profit will be made.



1 Which cell calculates the total income?

2 Which cell calculates the total expenditure?

3 Which cell calculates the profit/loss?

4 What is the formula in this cell?

5 In your own words, explain what the formula in the cell is doing to calculate the profit or loss.

- 6 If 400 people attend the fete, the model calculates a profit of £3527. What if 100 or 200 or 300 – or any other number of people – attend? Complete the table below.

Estimated number of people	Projected profit or loss
100	
200	
300	
400	£3527

- 7 How will you know if it is a loss rather than a profit?

Once a model has been constructed you can ask ‘What if...?’ questions of it by changing some of the variables.

Try these questions.

- 8 What if each person buys 2 teas or coffees rather than 1 tea or coffee? How much profit will be made if 400 people attend?

- 9 What if the caretaker charges double and the raffle prizes cost only £100? Will there still be a profit if only 125 people attend?

- 10 If not, how many people would be needed to make any profit?

- 11 The organisers think it might rain on the day of the fete. They want to know the lowest number of visitors who can attend if they are not to lose any money. This means the profit or loss is £0.

By looking at the figures in the table above, estimate the number of people required to attend.

- 12 Now use ‘trial and improvement’ to obtain an exact value for the number of people required. Keep changing D1 until you get as close to £0 profit or loss as you can.

