# The X Factor: Using Algebra to Solve Problems

Card sort activity

This activity consists of matching sets of cards (see next page) which include:

* written statements (e.g. Booking a party at an ice-skating rink costs $12 per person, as well as a booking fee of $30)
* variables and their definitions (e.g. *C* represents the total cost of booking the party, *n* represents the number of people I want to invite).
* equations, or rules (e.g. *C* = 12*n* + 30)
* scenarios requiring substitution (e.g. A party with 8 people would cost $126 to book)

You will need to cut these cards up and present them to students.

Ask students to match up cards that represent corresponding information.

You could adapt this activity further by providing only the second and third cards, and asking students to write a scenario that could represent the symbolic equation. This would help students demonstrate their understanding of the variables and numbers in the equation.

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| Booking a party at an ice-skating rink costs $12 per person, as well as a booking fee of $30. | C represents the total cost of booking the party.  n represents the number of people I want to invite. | C=12n+30 | A party with 8 people would cost $126 to book. |
| I have to pay a $12 deposit to book a party at a local restaurant.  It’s a fixed price menu, costing $30 per person. | C represents the total cost of booking the party.  n represents the number of people I want to invite. | C=30n+12 | It will cost $192 to book a party for six people. |
| A teacher is planning a chocolate egg hunt for her class. She’s going to buy 12 chocolate eggs for each student, and plans to have 8 left over for herself. | C represents the total number of chocolate eggs.  n represents the number of students in the class. | C=12n+8 | 188 eggs will be needed for a class of 15 students. |
| The cost of hiring a taxi is 12 cents per kilometre travelled. I also need to pay an $8 pick up fee. | C represents the total cost of hiring the taxi, in dollars.  n represents the number of kilometres travelled. | C=0.12n+8 | If I have $11, I’ll be able to travel for 25 kilometres. |
| A trip in an Uber costs $1.20 for every minute I’m in the car. Additionally, there’s an 80 cent service fee to pay. | C represents the total cost of hiring the Uber, in dollars.  n represents the number of minutes travelled. | C=1.2n+0.8 | A trip for a quarter of an hour will cost $18.80 |
| A primary school class goes on an excursion to a farm.  The children visit the henhouse, where each child collects 8 eggs. A dozen eggs needs to be left aside for breakfast for the farmer’s family. | C represents the total number of eggs.  n represents the number of students in the class. | C=8n+12 | A class of 12 students will need a total of 108 eggs. |

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