

## Frequently Asked Questions

Number of players ( $n$ )	Total cost in dollars ( $6n - 1$ )
1	5
2	11
3	17
4	23

**Q:** How can you use an expression to create a table of values?

**A:** First you write an expression that describes the situation. Then you use your expression to fill in values in your table.

For example, the table at the left shows how much it costs to go mini-golfing if it costs \$6 for each player and one player has a coupon for \$1 off. To figure out the cost for the group, multiply the number of players by \$6 and then subtract \$1. If you use  $n$  to represent the number of players, then you can use the expression  $6n - 1$  to calculate the cost.

**Q:** How can you figure out the rule or expression that was used to create a table?

**A:** You can check to see if there is a number pattern you can use to relate one column to another in a table of values.

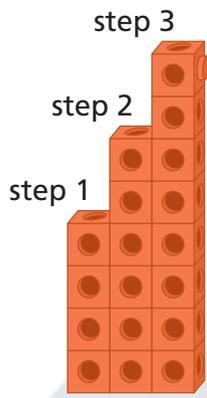
For example, the value of the coins shown in the table at the left goes up by 10¢ each day. So you know that multiplying the day number by 10 is part of the rule. The value of the coins is always 5¢ more than 10 times the day number, so adding 5 is also part of the rule. You can write the rule in words or as a mathematical expression.

**Rule in words:** Multiply the day number by 10, and add 5 to the product.

**Mathematical expression:**  $10d + 5$ , where  $d$  represents the day number.

Day ( $d$ )	Value of coins in jar ( $\times 10$ )	Value of coins in jar ( $\$$ )
1	10	15
2	20	25
3	30	35
4	40	45

+10¢  
+10¢  
+10¢



Barrett's starting number	Raj's result
1	6
2	10
3	14
4	18

## Practice

### Lesson 1

- Madeline built a staircase with linking cubes.
  - Write a pattern rule for Madeline's staircase.
  - Predict the number of cubes in step 10. Explain your prediction, then check it.

### Lesson 2

- To play Guess My Rule, Barrett writes a starting number. Raj uses a mystery rule to calculate a result.
  - Write a pattern rule for each column in the table.
  - How do you know that Raj's mystery rule probably involves multiplying Barrett's starting number by 4?
  - What could Raj's rule be?
  - If Barrett's starting number is 10, what is Raj's result? Use your rule from part c).

### Lesson 3

- Priya's cousin from Seattle, Washington, is planning to visit Priya in Vancouver this summer. Priya is making a table that her cousin can use to estimate the Fahrenheit temperature if she knows the temperature in degrees Celsius.

Celsius temperature (°C)	10	15	20	25	30
Fahrenheit temperature (°F)					

- Write Priya's rule as an expression.
- Copy the table. Fill in the Fahrenheit temperatures.
- What number patterns do you see in the Celsius temperatures and the Fahrenheit temperatures?
- If the Celsius temperature is 35°, what is the estimated Fahrenheit temperature? Show your work.