

Algebra — Relations and Functions

Name: _____

Date: _____

Concepts

- Algebra — Relations and Functions
 - The Modes of Representation of a Relation
 - Pattern Rule of a Sequence
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Algebra — Relations and Functions

1. In each situation below, two quantities are recorded. Name the two variables, state which one is the independent variable and which is the dependent variable, and explain your choice in one sentence. If the two quantities are not linked by a dependency relationship at all, say so instead.

- A snow-clearing truck spreads 25 kg of abrasive on every kilometre of street. The crew notes the length of street cleared and the total mass spread.
- At the neighbourhood pool, each swimmer in a group pays \$3 to get in. The cashier notes the number of swimmers in the group and the amount the group pays.
- Over one hockey season, the coach notes the number of goals Léa scores in each game and the number of letters in her first name.

Pattern Rule of a Sequence

2. The first four terms of a sequence are

$$7, \quad 11, \quad 15, \quad 19, \quad \dots$$

- Write the next three terms, and describe in words how the sequence grows.
- Write the pattern rule that gives the term in position n .
- Use your rule to find the term in position 50.

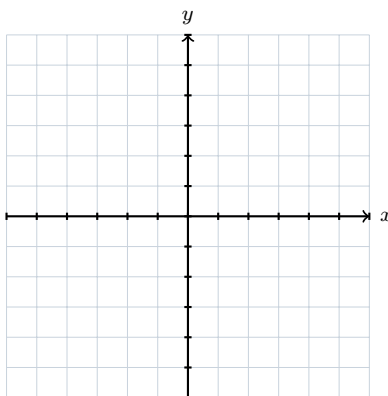
The Modes of Representation of a Relation

3. On Monday morning Émilie has \$6 in her coin jar, and she spends \$2 on the bus on each school day. Let x be the number of school days that have gone by and y the number of dollars left in the jar.

- Complete the table of values.

x (school days)	0	1	2	3
y (dollars left)				

- Write the rule linking y to x .
- Plot the four points of your table on the grid, then say what you notice about the way they are placed and why the situation makes that happen.



Synthesis — drawing on several sheets in this topic

4. For the science fair, Théo pushes hexagonal tables together in one long row. One table on its own seats 6 people; two tables pushed end to end seat 10; three tables seat 14.

- a) Build a table of values for 1 to 5 tables, and describe the growth in words.
- b) Write the rule giving the number of seats y for n tables, and say where each number in your rule comes from in the row of tables.
- c) Théo needs exactly 42 seats. How many tables should he push together?
- d) Théo claims that a row of these tables can never seat an odd number of people. Is he right? Justify your answer using your rule.

Want the harder problems and the worked solutions?

The *Challenge Problems* set and the *Answer Keys* for Algebra — Relations and Functions — with the reasoning written out in full — are available at tutorinmontreal.ca.