

Math 9

Name: _____

4.1 – Describing Linear Patterns

Date: _____

A **VARIABLE** is a _____.

An **EQUATION** is a way to _____

Or: An **EQUATION** describes _____

Examples of equations: $C = 2n - 1$

$$y = -0.5x + 1.5$$

$$h = \frac{2}{3}t^2 + 3t - 7$$

A **COEFFICIENT** is the _____

A **CONSTANT** is the _____

“Evaluate an Equation” means: _____

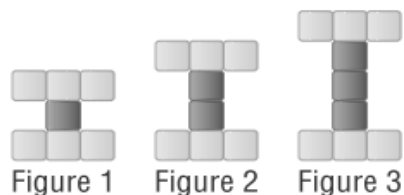
e.g. Given $C = 2n - 1$, **evaluate** the value of C when $n = 5$

e.g. Given $y = -0.5x + 1.5$, **evaluate** the value of y when $x = -4$

A **relationship** between two variables can be described/represented in a number of different ways, using:

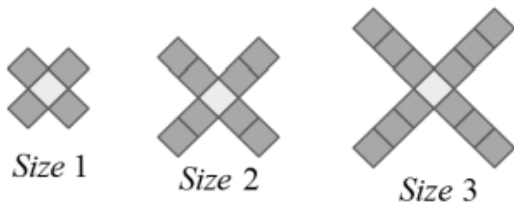
1. Diagrams
2. Words
3. Table of Values
4. Equation
5. Graph

Here is a pattern made with squares:



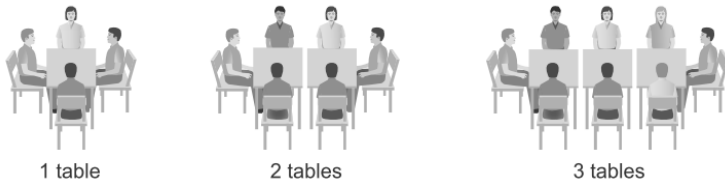
1. Study the pattern and sketch **the next 2 figures** in the pattern.
2. Describe exactly what is the same in all of the figures.
3. Describe exactly what changes from one figure to the very next figure.
4. Describe the strategy you could use to determine the number of squares in Figure 7.
5. Describe the strategy you could use to determine the number squares in Figure 27.
6. Complete the following statement:
"The number of squares in Figure N are _____"
7. If we use N to represent the **number of the figure** and S to represent the **number of squares** in figure N , complete the following equation:
 $S =$
8. Illustrate the relationship between S and N using a table.

Here is a pattern made with squares:



1. Study the pattern and sketch **the next 2 sizes** in the pattern.
2. Describe exactly what stays the same in all of the sizes.
3. Describe exactly what changes from one size to the very next size.
4. Describe the strategy you could use to determine the number of squares in size 7.
5. Describe the strategy you could use to determine the number squares in size 27.
6. Complete the following statement:
"The number of squares in Size N are _____"
7. If we use N to represent the **size number** and S to represent the **number of squares** in size N , complete the following equation:
 $S =$
8. Illustrate the relationship between S and N using a table.

A banquet hall has small square tables that seat one person on each side. The tables can be pushed together to form longer tables, as shown below:



1. Study the pattern and sketch the next 2 table arrangements.
2. Describe exactly what stays the same in all of the arrangements.
3. Describe exactly what changes from one arrangement to the very next one.
4. Describe the strategy you could use to determine the number of people seated around 7 tables.
5. Describe the strategy you could use to determine the number of people seated around 27 tables.
6. Complete the following statement:

“The number of people seated around N tables are _____”
7. If we use N to represent the **number of tables** and P to represent the **number of people** seated around N tables, complete the following equation:

$P =$
8. Illustrate the relationship between P and N using a table.