

# Writing a Function Rule

## Guided Notes

### Function Rule

A function rule is a mathematical rule that can be used to describe the general trend of the function. A rule can be taken as an **equation** representing any relationship.

### Verbal Statement

A mathematical verbal statement is a translation into words, of an equation (or an expression) containing different operations, numbers and variables.

### How to write a function rule?

If we are given a verbal statement of the function, we can identify the **key words** in the verbal statement and write a function rule (an equation or an expression) based on the mathematical meaning of the key words.

Words suggesting Addition	Words suggesting Subtraction	Words suggesting Multiplication	Words suggesting Division
Plus	Minus	Times	Divided by
Sum	Difference	Product	Quotient
Increased by	Decreased by	Each	Rate
More than	Less/Fewer than	Factors	Ratio
Total/in all	Subtracted by	Twice, Thrice, ...	Half, A third of, ...

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**Problem 1:** Write a function rule representing the verbal statement given below.

“Twice a number  $x$  increased by 3 equals  $y$ ”

Twice a number  $x$

$$2x$$

Increased by 3

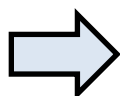
$$+3$$

Equals

$$=$$

$y$

$$y$$



$$2x + 3 = y$$

### Evaluating Function Rule

In solving real life problems, we need to first write a function rule from the given verbal statement and then **evaluate** the function rule to determine a particular value. In short two steps to follow:

- Write a function rule
- Evaluate the function rule

**Problem 2:** A sales associate earns 400\$ per week plus 4% of his sales. Write a function rule for the amount  $e$  he earns in a week if he sells  $s$  dollars of merchandise. How much will he make if he sells 4000\$ worth of merchandise?

Earning  $e$

$$e$$

Equals

$$=$$

400

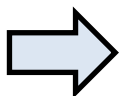
$$400$$

Plus

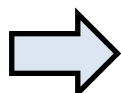
$$+$$

4% of sales  $s$

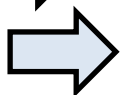
$$0.04s$$



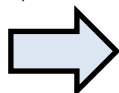
$$e = 400 + 0.04s$$



$$e = 400 + 0.04(4000)$$



$$e = 400 + 160$$



$$e = 560\$$$