

Defining Values

In math, we use **values** like -98.1 , 23 and 42 . In math, we also use **expressions** like 1×3 , $\sqrt{16}$, and $5 - 2$. These evaluate to results, and typing any of them in as code produces some answer.

Math also has **definitions**. These are different from values and expressions, because *they do not produce results*. Instead, they simply create names for values, so that those names can be re-used to make the Math simpler and more efficient.

Definitions always have both a name and an expression. The name goes on the left and the value-producing expression goes on the right, separated by an equals sign:

```
x = 4
y = 9 + x
```

The name is defined to be the result of evaluating the expression. Using the above examples, we get "x is defined to be 4, and y is defined to be 13. **Important: there is no "answer" to a definition**, and typing in a definition as code will produce no result.

Notice that *definitions can refer to previous definitions*. In the example above, the definition of `y` refers to `x`. But `x`, on the other hand, *cannot* refer to `y`. Once a value has been defined, it can be used in later expressions.

In Pyret, these definitions are written the *exact same way*:

Try typing these definitions into the Definitions Area on the left, clicking "Run", and then *using* them in the Interactions Area on the right.

```
x = 4
y = 9 + x
```

Just like in math, definitions in our programming language can only refer to previously-defined values.

Here are a few more value definitions. Feel free to type them in, and make sure you understand them.

```
x = 5 + 1
y = x * 7
food = "Pizza!"
dot = circle(y, "solid", "red")
```