**Unit 1a - Worksheet 2**

**Working with Expressions in Pyret, Part 1**



For the first few questions we will work on the right (*Interaction Side*) of the Pyret screen.

# **Values in Pyret**

1. What happens when you *type* values into the interaction window of Pyret and press *‘return’*? Fill in the table below. Make predictions first and then try it in Pyret. If you get an error message, what do you think this error message is telling you?

|  |  |  |  |
| --- | --- | --- | --- |
| **What you type** | **What type of value is it?** | **Prediction** | **Observation** |
| **5** |  |  |  |
| **“Hello”** |  |  |  |
| **3.14** |  |  |  |
| **5.00** |  |  |  |
| **Hello** |  |  |  |

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# **Expressions in Pyret**

1. What happens when you *type* the following examples into the interaction window of Pyret and press *‘return’*? Fill in the table below. Make the predictions first and then try it in Pyret. If you get an error message, what do you think this error message is telling you? For each expression listed describe what the expression does or explain why it yielded an error message.

|  |  |  |  |
| --- | --- | --- | --- |
| **What you type** | **Prediction** | **Observation** | **Describe/Explain** |
| **5 + 6** |  |  |  |
| **5+6** |  |  |  |
| **5 \* 6** |  |  |  |
| **3.14 - 2.1** |  |  |  |
| **1 / 2** |  |  |  |
| **1 / 3** |  |  |  |
| **(2 + 7) \* 3** |  |  |  |
| **2 + 7 \* 3** |  |  |  |
| **“Hel” + “lo”** |  |  |  |

# **Functions in Pyret**

**Working with Library Functions**

1. *Predict* what would happen if you type circle(30, “solid”, “red”) into the right (interaction) window. Justify your prediction.

*Type* circle(30, “solid”, “red”)into the interaction (right) window and press ‘*return’*. Was your prediction correct? If you did not get the output you predicted, why do you think this happen?

**When working with functions from the Pyret libraries, we need to ask Pyret to include these files into the programs we are writing.**

Type the command **include** imageinto the interaction window. Note that Pyret auto-highlighted the word “include” in boldface. What do you think it means?

Now type circle(30, “solid”, “red”)into the right (interaction) window and press *return*. Describe the result.

Review the library functions described in worksheet one. Test *at least 3* these functions in the interaction windows and describe the results (provide both code and description of results).

**User defined functions**

1. Imagine you are working with a set of functions defined and coded by another user. This user attempted to give these functions clear and descriptive names. The products of these functions are similar to those created by the expressions in question 2.

For each function example below, write a contract describing the function and describe what you think this function does.

* 1. sum(5, 6)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | :: ( |  | ) -> |  |
| function name |  | domain |  | range |
|  | | | | |
| What does this function do? | | | | |

Bonus: Would this function work if you gave it “Hel” and “lo”? Why or why not?

* 1. multiply(5, 6)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | :: ( |  | ) -> |  |
| function name |  | domain |  | range |
|  | | | | |
| What does this function do? | | | | |

* 1. difference(3.14, 2.1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | :: ( |  | ) -> |  |
| function name |  | domain |  | range |
|  | | | | |
| What does this function do? | | | | |

* 1. append(“Hello”, “ world”)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | :: ( |  | ) -> |  |
| function name |  | domain |  | range |
|  | | | | |
| What does this function do? | | | | |

* 1. Write a contract for a function that that takes three numbers (*a*, *b*, and *c*), add the first two (*a* and *b*) and then multiplies this sum by the third (*c*)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | :: ( |  | ) -> |  |
| function name |  | domain |  | range |
| This function that that takes three numbers (*a*, *b*, and *c*), adds *a* and *b* and then multiplies this sum by *c* | | | | |
| What does this function do? | | | | |

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