DS1EDP: Homework 02 – Solutions

1. Creating Arrays

Question 1:

```
weird_numbers = make_array(-2, math.sin(1.2), 3,
5 ** math.cosin(1.2))
```

Question 2:

```
book_title_words = make_array("Eats", "Shoots", "and Leaves")
```

Question 3:

```
with_commas = ",".join(book_title_words)
without_commas = " ".join(book_title_words)
```

Note: Make sure that the string in the second line contains a blank space!

2. Indexing Arrays

Question 1:

```
third_element = some_numbers.item(2)
```

Note: The first element of an array is always at index **0**. So the **nth**

element is at index **n-1.** Mind this in the following questions as well!

Question 2:

```
elements_of_some_numbers = Table().with_columns(
"English name for position", make_array("first", "second",
"third", "fourth", "fifth"), "Element", some_numbers)
```

Question 3:

```
index_of_last_element = 141
```

Question 4:

```
most_recent_birth_year =
president_birth_years.item(len(president_birth_years) – 1)
```

Question 5:

```
sum_of_birth_years = president_birth_years.item(0) +
president_birth_years.item(9) +
president_birth_years.item(len(president_birth_years) – 1)
```

3. Basic Array Arithmetic

Question 1:

```
first_product = 42 * 157
second_product = 4224 * 157
third_product = 42422424 * 157
fourth_product = -250 * 157
```

Question 2:

```
numbers = make_array(42, 4224, 42422424, -250)
products = numbers * 157
```

Question 3:

```
celsius_max_temperatures = numpy.round((max_temperatures – 32) *
5/9))
```

Question 4:

```
celsius_temperature_ranges = (((max_temperatures - 32) * 5/9) -
((min_temperatures - 32) * 5/9)))
```

4. World Population

Question 1:

```
largest_population_change = numpy.max(numpy.diff(population))
```

5. Old Faithful

Question 1:

```
shortest = numpy.min(waiting_times)
longest = numpy.max(waiting_times)
average = numpy.mean(waiting_times)
```

Question 2:

```
biggest_change = numpy.max(abs(numpy.diff(waiting_times)))
```

Note: It is important to use the abs() function here as well! The biggest

change could also be a negative value.

6. Tables

Question 1:

```
fruits = Table().with_columns(“fruit name”, make_array(“apple”,
“orange”, “pineapple”), “count”, make_array(4, 3, 3))
```

Question 2:

```
inventory = Table.read_table(“inventory.csv”)
```

Question 3:

```
sales = Tables.read_table(“sales.csv”)
```

Question 4:

```
total_fruits_sold = sum(sales.column(“count sold”))
```

Question 5:

```
total_revenue = sum(sales.column(“count sold”) *
sales.column(“price per fruit ($)”)
```