# More Exercises: Data Types and Variables

1. **Digits with Words**

Write a **function** that receives a **digit** in the form of a **word** as **string** and prints the **digit** as a **number**.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 'nine' | 9 |
| 'two' | 2 |
| 'zero' | 0 |

**Hints**

Use a **switch** case.

1. **Prime Number Checker**

Write a **function** to check if a number is **prime** (only wholly divisible by itself and one).

The **input** comes as a single number argument.

The **output** should be the return value of your function. Return **true** for prime number and **false** otherwise.

**Examples**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| 7 | true |  | 8 | false | 81 | false |

**Hints**

You can find more information about prime numbers: <https://en.wikipedia.org/wiki/Prime_number>

1. **Cone**

Write a **function** to calculate a cone’s **volume** and **total** **surface area** by given height and radius at the base.

The **input** comes as two number arguments. The first element is the cone’s **radius** and the second is its **height**.

The **output** should be printed to the console on a **new line** for every result. The result should be formatted to the **fourth decimal point**

**Examples**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 3,  5 | volume = 47.1239  area = 83.2298 |  | 3.3,  7.8 | volume = 88.9511  area = 122.0159 |

**Hints**

You can use this online tool to check your results: http://www.calculatorsoup.com/calculators/geometry-solids/cone.php

1. **Biggest of 3 Numbers**

Write a **function** that finds the **biggest of 3 numbers**.

The **input** comes as 3 parameters.

The **output** is the **biggest** from the input numbers.

**Examples**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |  | **Input** | **Output** |
| -2,  7,  3 | 7 |  | 130,  5,  99 | 130 | 43,  43.2,  43.1 | 43.2 |

1. **Binary to Decimal**

Write a **function** that reads an 8-bit binary number and converts it to a decimal.

The **input** comes as one string element, representing a binary number.

The **output** should be printed to the console.

**Examples**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 00001001 | 9 |  | 11110000 | 240 |

1. **Chess Board**

Write a **function** to print a chessboard of size **n X n**. See the example for more information.

The **input** comes as a single number argument **n**.

The **output** should be returned as a result of your function in the form of a string.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 3 | <div class="chessboard">  <div>  <span class="black"></span>  <span class="white"></span>  <span class="black"></span>  </div>  <div>  <span class="white"></span>  <span class="black"></span>  <span class="white"></span>  </div>  <div>  <span class="black"></span>  <span class="white"></span>  <span class="black"></span>  </div>  </div> |

1. **Triangle Area**

Write a **function** that calculates a **triangle’s area** by its 3 sides.

The **input** comes as three number arguments, representing one **side** of a triangle.

The **output** should be printed to the console.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2,  3.5,  4 | 3.4994419198 |

**Hints**

Use [Heron’s formula](https://en.wikipedia.org/wiki/Heron%27s_formula) to obtain the result.