**When you instantiate a variable, what two parts does the computer require you to write?**

**The “ = “ in Processing is equivalent to what BYOB block?**

**Create the following:**

1. A container to store a letter grade
2. A variable named avg that stores a real number
3. A 64 bit number that could be used to store the number of people in the world
4. A 32 bit real number called pi that stores the value 3.141.
5. Assume a variable called val is already created. Increase val by one:
6. Take a variable called cool and add twice the value of val to cool:

**What are the values of the variables** num1 **and** num2 **after each segment of code is executed?**

int num1 = 5;  
int num2 = 7;  
num1 = num1 \* -1;  
num2 = num1 + num2;

int num1 = 0;  
int num2 = 1;  
num1 = num1 \* -1;  
num1 = num1 – num2 \* 2;

**Convert the following numbers from base 10 into base 2**

5 \_\_\_\_\_\_\_\_\_

53 \_\_\_\_\_\_\_\_\_

**Convert from base 2 to base 10**

0011 0010 \_\_\_\_\_\_\_\_\_

1000 1100 \_\_\_\_\_\_\_\_\_

**Convert from base 16 to base 10**

49 \_\_\_\_\_\_\_\_\_

BAD \_\_\_\_\_\_\_\_\_

**Convert from base 16 to base 2 Convert from base 2 to base 16**

7F2 \_\_\_\_\_\_\_\_\_ 1001 1100 \_\_\_\_\_\_\_\_\_

**Use the ASCII table to fill in the following blanks:**

|  |  |  |
| --- | --- | --- |
| **Character** | **Decimal Number** | **Binary Number** |
| K |  |  |

**List the three rules to help you remember what variables will fit into another variable**

1)

2)

3)