HW #3

True or False

1. Information that is stored and manipulated by computer is called data.
    a. True, data is stored and manipulated by computers.
2. Since floating point numbers are extremely accurate, they should always be used instead of ints.
    a. False, they should only be used only when accuracy is needed because they take up more RAM space then integers.
3. Operations like adding and subtracting are defined in the math library.
    a. False, they are not defined in the math library. Otherwise people would have to do math.add() to add numbers.
4. The number of possible arrangements of *n* numbers is *n!*.
    a. True, the number of arrangements of n numbers is n!.
5. The *sqrt* function computes the squirt of a number.
    a. False, the *sqrt* function computes the square root of the number.
6. The int data type is identical to the math concept of an integer.
    a. False, math integers aren't restricted. Python integers are restricted to the memory of your computer
7. Computers represent number using base 2.
    a. True, they use 1s and 0s.
8. A hardware float can represent indefinitely large numbers.
    a. This is a true statement.
9. A python int can represent indefinitely large numbers.
    a. False, python is limited to the memory of the computer.
10. In python 4+5 produces the same result type as 4.0+5.0
    a. False, 4+5 returns an int, 4.0 + 5.0 returns a float.

Multiple Choice

1. Which of the following is not a Python data type?
    c. Rational is not a data type in Python.
2. Which of the following is not a built-in operation?
    d. Sqrt() is not a built-in operation. sqrt() is part of the math library.
3. In order to use functions in a math library, a program must include…
    d. An import statement is necessary to use the functions in a library.
4. The value of 4! is
    b 24. 4! is = 4*3*2*1 = 24
5. The most appropriate data type for storing pi is
    b. Float is the most appropriate data type because it is the most accurate.
6. The number of distinct values that can be stored with 5 bits is
    c. 32 distinct values that can be stored. The number of distinct values stored with n bits is 2^n.
7. In a mixed-type expression, Python converts
    d. Python converts ints to floats.
8. Which of the following is not a python type-conversion function

d. abs() is not a type conversion, it is the number's distance to zero.

9. The pattern used to compute factorial is
   a. An accumulator computes factorial.
10. In modern Python, an int value that grows larger than the underlying hardware int
    a. Causes an overflow.