Outline for January 9

**Reading:** Wentworth *et al.*, §2

**Assignments:** Homework 1, due on January 18 at 11:55pm

1. Variables
   a. What they are
   b. Variable names
   c. Variable types (int, float, string)
   d. Function `type()`
   e. Python keywords
2. Variables
   a. Legal names
   b. Keywords
   c. How to pick variable names
3. Simple assignment: `variable = expression`
4. Expressions
   a. Operators `+`, `-`, `*`, `/`, `//`, `%`, `**`
   b. Precedence
      i. Parentheses for grouping (`(`, `)`)
      ii. Exponentiation (`**`); associates right to left
      iii. Positive, negative (unary `+`, `-`)
      iv. Multiplication, division, integer division, remainder (`*`, `/`, `//`, `%`)
      v. Addition, subtraction (binary `+`, `-`)
      vi. In general, operators of equal precedence are evaluated from the left to the right (associativity); exception noted above
5. Example
   a. Compute the hypotenuse of a right triangle *
5. Example
   a. Compute the hypotenuse of a right triangle `[hypotnoex.py]`
6. The difference between strings and integers `[twoplustwo.py]`
   a. Difference between `'2 + 2'`, `2 + 2`
   b. Print statements usually end lines
   c. Getting print statements not to end lines
7. Type converter functions `int`, `float`, `str`
8. String operators
   a. Operator `+`: string concatenation
   b. Operator `*`: repetition
9. Input: `input()` statement
   a. `input(prompt)` prints prompt, waits for user
   b. When user hits enter, it returns what was typed as a string
10. Exceptions
    a. Division by zero `[divby0.py]`
    b. Typing letters when a number is expected `[hypotex.py]`
11. Writing a program: rice on chessboard `[ricechess.py]`