Data Bootcamp: Code Practice #1
Revised: January 16, 2016

1. Describe and explain what each of these expressions produces in basic Python:

   ```
   2+5
   2 + 5
   2*5
   2/5
   2**5
   ```

2. What is the value of x after running these statements in order? Why?

   ```
   x = 7
   x = x + 3
   ```

3. What is the value of y after running these statements in order? Of x? Why?

   ```
   x = 3
   y = x
   x = 10
   ```

4. Does this code run without error? If so, what does it produce? If not, explain why.

   ```
   x = 3
   x = x/2
   y = 'abc'
   z = y + y
   print(x, z)
   ```

5. Does this code run without error? If so, what does it produce? If not, explain why.

   ```
   x = 3
   x = x/2
   y = 'abc'
   z = x + y
   print(x, z)
   ```

6. Does this code run without error? If so, what does it produce? If not, explain why.

   ```
   x = 3
   y = 24
   z = y / x
   print(x, y, z, sep=' | ')
   ```

7. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = 3
y = '24'
z = y / x
print(x, z)
```

8. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = "I am a #string"  # Whoa, a string!
```

9. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = [1, 2, 3]
y = [42, 43]
z = x + y
print(z)
```

10. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = [1, 2, 3]
y = 42
z = x + y
```

11. What "types" are

```
x1 = 12
x2 = 12.0
x3 = '12.0'
x4 = [12, 12.0, '12.0']
```

12. Explain the result of each line:

```
type(42)
type(42.0)
type('42.0')
type("42.0")
type("""42.0""")
type([1, 2])
type([1] + [2])
type(1 + 2)
type(print)
```

13. Explain the result of this statement:

```
type(float(str(int(str(1)))))
```

14. Explain each line:

    ```
    len([123456])
    len("123456")
    len(123456)
    ```

15. Convert the string x = 'abcde' to a list. What does it look like?

16. *Challenging.* Consider the integer x = 1234.
    (a) Convert x to a floating point number.
    (b) Convert x to a string.
    (c) Convert x to the list

        ```
        ['1', '2', '3', '4']
        ```

17. *Challenging.* How would you convert x to "title case" (first letter of each word capitalized)? *Hint:* Use tab completion to find an appropriate method.

    ```
    x = "luke, i am your father"
    ```

18. *Challenging.* Consider the string

    ```
    x = "How many characters and words are in this string?"
    ```

    (a) How many characters does x contain?
    (b) Convert x to a list of individual characters.
    (c) Convert x to a list of individual words.
    (d) How many words does x contain?