**Exercise Set #5**
CS 1213, Fall 2018

1. Write a Boolean expression to express each of these conditions. The names in the `Courier` font are all assumed to be variables.

   a. `length` is greater than 3.
   b. `size` is strictly between 2 and 5.
   c. `balance` is negative and `payable` is positive.
   d. Both `alpha` and `beta` are positive.
   e. `alpha` and `beta` have the same sign (both are negative or both are positive).
   f. `x` is in the range −5.0 to +5.0.
   g. `total` is either less than 6 or greater than 10.
   h. `p`, `q`, and `r` are all equal.
   i. Either `x` is less than 3, or `y` is less than 3, but not both.

2. Show the value of each of these Boolean expressions. Assume these variables and values for each problem. Note that `True` and `False` are Boolean constants.

```
a = 10
b = 23
x = 1.5
p = True
q = False
```

   a. `a!=b or x>2.34`
   b. `not(p and q)`
   c. `(a+b==33 and q) or (x<=100)`
   d. `(p and not q) or (q and b-4>=a)`
   e. `not(q and p)`
   f. `not(q or p)`
   g. `not(q and not p)`
   h. `(a>b) or not((b==23) and (x*2.0!=30.5))`
   i. `(p or q or a<b) and not q and (a==10)`