Lab 20
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CS – 3035 – 05

Note: Made sure ahead of time that screenshotting code is acceptable due to vim being

Q1:

```
takeFromList list n = list!!(n-1)

main = do
    let tempList = [1,2,3,4,5]
    print( takeFromList tempList 3 )
```

```
dexter@dexk-VirtualBox:~/projects$ ghc lab20.hs
[1 of 1] Compiling Main             ( lab20.hs, lab20.o )
Linking lab20 ...
dexter@dexk-VirtualBox:~/projects$ ./lab20
5
```

Q2:

```
area l w = l*w

main = do
    print( area 5 7 )
```

```
dexter@dexk-VirtualBox:~/projects$ ghc lab20.hs
[1 of 1] Compiling Main             ( lab20.hs, lab20.o )
Linking lab20 ...
dexter@dexk-VirtualBox:~/projects$ ./lab20
35
```

Q3:

```
returnList n = [n | n <- [1..n]]

main = do
    print( returnList 5 )
```

```
dexter@dexk-VirtualBox:~/projects$ vim lab20.hs
dexter@dexk-VirtualBox:~/projects$ ./lab20
[1,2,3,4,5]
```

Q4:

```
dexter@dexk-VirtualBox:~/projects$ ./lab20
True
False
```

```
pythagorean a b c
    | sqrt( a^2 + b^2 ) == c = True
    | otherwise = False

main = do
    print( pythagorean 3 4 5)
    print( pythagorean 3 4 6)
```

Q5:

```
 1 rightTriangle x y z
 2     | sqrt( x^2 + y^2 ) == z = True
 3     | sqrt( x^2 + z^2 ) == y = True
 4     | sqrt( y^2 + z^2 ) == x = True
 5     | otherwise = False
 6
 7 main = do
 8     print( rightTriangle 3 4 5)
 9     print( rightTriangle 5 4 3)
10     print( rightTriangle 3 5 4)
11     print( rightTriangle 3 6 4)
12
```

```
dexter@dexk-VirtualBox:~/projects$ ./lab20
True
True
True
False
```

Q6:

```
1 factorial n = product [1..n]
2
3 main = do
4     print( factorial 5 )
```

```
dexter@dexk-VirtualBox:~/projects$ ./lab20
120
```

Q7:

```
1 slaps list n = ["slap "++x | x <- take n (cycle list)]
2
3 main = do
4     print( slaps ["Moe", "Larry", "Shemp"] 5 )
```

```
dexter@dexk-VirtualBox:~/projects$ ./lab20
["slap Moe","slap Larry","slap Shemp","slap Moe","slap Larry"]
```

Q8:

```
1 pythagoreanTriple = [(a,b,c) | a <- [1..15], b <- [1..15], c <- [1..15], a<=b, b<=c, sqrt ( a^2 + b^2 ) == c]
2
3 main = do
4     print( pythagoreanTriple )
```

```
dexter@dexk-VirtualBox:~/projects$ ./lab20
[(3.0,4.0,5.0),(5.0,12.0,13.0),(6.0,8.0,10.0),(9.0,12.0,15.0)]
```