

Quiz 2 MC, CT, and ROC (40 pts)

Time Limit: **15 mins**

Name: _____ AndrewID: _____

This part does not contain any free responses. Do not run any code when completing this part of Quiz 2.

Time limit: 15 mins

Part 1 — Multiple Choice (10 pts total)

1. (2 pts) Is this a correct version of nthPrime?

```
def nthPrime(n):  
    primesFound = 0  
    primesToFind = n + 1  
    guess = 0  
    while primesFound < primesToFind:  
        guess += 1  
        if isPrime(guess):  
            primesFound += 1  
    return guess
```

- ☐ Correct
- ☐ Incorrect

2. (2 pts) Is this a correct version of nthPrime?

```
def nthPrime(n):  
    primesFound = 0  
    primesToFind = n + 1  
    guess = 0  
    while primesFound < primesToFind:  
        if isPrime(guess):  
            primesFound += 1  
            guess += 1 # We increment guess after the if statement  
    return guess
```

- ☐ Correct
- ☐ Incorrect

3. (2 pts) Is this a correct version of nthPrime?

```
def nthPrime(n):
    primesFound = 0
    primesToFind = n + 1
    guess = 0
    while primesFound < primesToFind:
        if isPrime(guess):
            primesFound += 1
        guess += 1      # We increment guess after the if statement
    return guess - 1    # and we return guess - 1
```

- ☐ Correct
- ☐ Incorrect

4. (2 pts) Is this a correct version of nthPrime?

```
def nthPrime(n):
    primesFound = 0
    guess = 0
    # Our loop guard uses <= n instead of < primesToFind
    while primesFound <= n:
        guess += 1
        if isPrime(guess):
            primesFound += 1
    return guess
```

- ☐ Correct
- ☐ Incorrect

5. (2 pts) Is this a correct version of nthPrime?

```
def nthPrime(n):
    primesFound = 0
    guess = 0
    # Our loop guard uses < n instead of < primesToFind
    while primesFound < n:
        guess += 1
        if isPrime(guess):
            primesFound += 1
    return guess
```

- ☐ Correct
- ☐ Incorrect

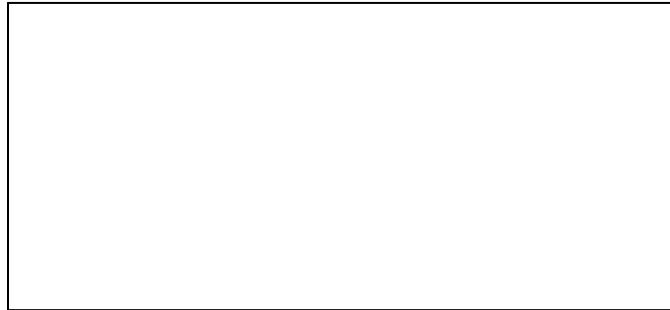
Part 2 — Code Trace / Reasoning Over Code (30 pts total)

Code Trace 1 (8 pts)

What does the following code print?

```
def ct(n):  
    x, y = 0, 0  
    for i in range(n):  
        if i % 2 == 1:  
            x += 1  
        elif i == 4:  
            break  
        else:  
            y += 2  
            continue  
        print(x, y)  
    print(x + y)  
  
print(ct(6))
```

Output:



Code Trace 2 (8 pts)

What does the following code print?

```
def ct(x, y):
    for i in range(x):
        for j in range(i, y):
            if (i + j) % 3 == 0:
                print(i, j)
        if i < 2:
            print('hi')
    return i + j

print(ct(3, 5))
```

Output:



Reasoning Over Code 1 (7 pts)

Fill in the blanks so $f(x, y) == g(x, y)$ for all numbers x and y .

```
'''
def f(x, y):
    z = 0
    if x < y:
        z = y - x
    elif y < x:
        z = x - y

    return z/2 + min(x, y)

def g(x, y):
    return (_____) / 2
'''
```

Reasoning Over Code 2 (7 pts)

Find an argument for the function `roc(n)` that makes it return `True`. Write your answer (and nothing else) in the box below.

```
def f(n):
    res = 1
    while n >= 10:
        res += 1
        n //= 10
    return res

def roc(n):
    if n < 1000: return False
    while n >= 100:
        if n % 10 != f(n):
            return False
        n //= 10
    return True
```

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