

# 2015-05-15-204021-riemann-r

William Stein

5/15/2015

## Contents

```
def getR(terms):  
    ring = CC  
    c = [0] + [ring(moebius(n))/n for n in range(1, terms+1)]  
    def f(x):  
        x = ring(x)  
        s = ring(0)  
        for n in range(1, terms+1):  
            y = x^ring(1/n)  
            #if y < 2:  
            #    break  
            s += c[n] * Li(y)  
        return s  
    return f
```

```
R = getR(10)
```

```
R(10^(0.5+14.134725142*I))  
1.27503179201251 + 1.45113393030397*I
```

```
getR(100)(10^(0.5+14.134725142*I))  
1.33909145539322 + 1.39549912248678*I
```

```
getR(1000)(10^(0.5+14.134725142*I))  
1.45071029990556 + 1.37439809941730*I
```

```
getR(10000)(10^(0.5+14.134725142*I))  
1.49991573882936 + 1.36935083846907*I
```

Above is consistent with <http://www.wolframalpha.com/input/?i=RiemannR%2810%5E%280.5%2B14.134725142i%29%29+>