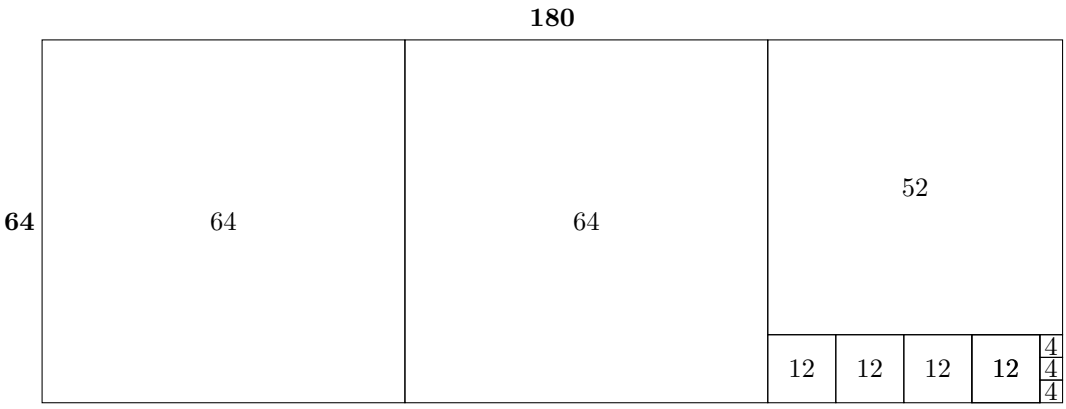
NOTES ON CONTINUED FRACTIONS

ERIC MARTIN

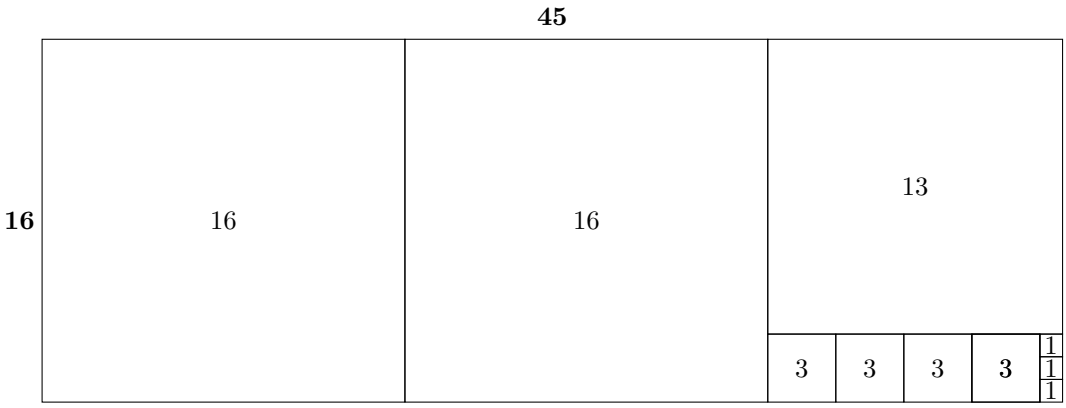
Applying Euclid's algorithm to determine that $\gcd(180, 64) = 4$:

```
180 = 180 // 64 * 64 + 180 % 64 = 2 * 64 + 52
 64 =  64 // 52 * 52 +  64 % 52 = 1 * 52 + 12
 52 =  52 // 12 * 12 +  52 % 12 = 4 * 12 +  4
 12 =  12 //  4 *  4 +  12 %  4 = 3 *  4 +  0
```



Irreducible fractions have a gcd equal to 1:

```
45 = 45 // 16 * 16 + 45 % 16 = 2 * 16 + 13
16 = 16 // 13 * 13 + 16 % 13 = 1 * 13 +  3
13 = 13 //  3 *  3 + 13 %  3 = 4 *  3 +  1
 3 =  3 //  1 *  3 +  3 %  1 = 3 *  1 +  0
```



$$\frac{45}{16} = 2 + \frac{1}{1 + \frac{1}{4 + \frac{1}{3}}}$$

Date: Session 2, 2016.