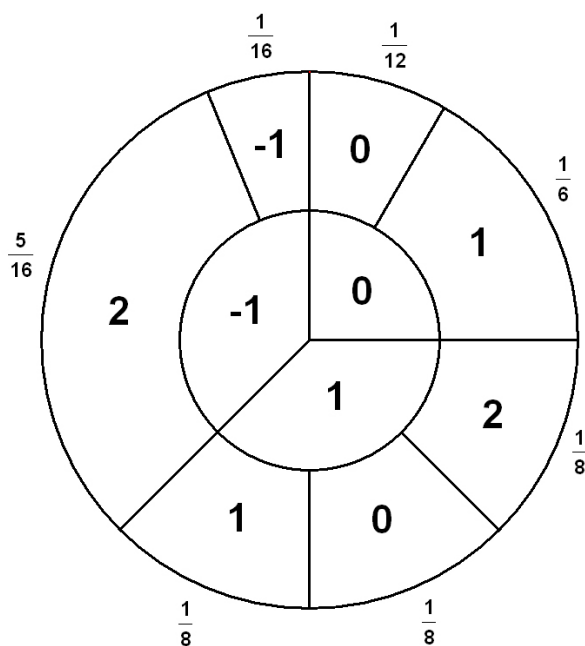


1. Suppose $d = \gcd(80370, 70186)$.
 - (a) Find d
 - (b) Find k, l such that $d = 80370 \cdot k + 70186 \cdot l$.
2. For each of the following find $a^{-1} \pmod{m}$ or explain why no such inverse exists. That is, find c such that $ac \equiv 1 \pmod{m}$.
 - (a) $a = 17489, m = 19445$
 - (b) $a = 132131, m = 146757$.
3. Find $\phi(3488400)$
4. Consider the following wheel:



- Suppose that X is the average of 10 rolls of the inner wheel, Y is the average of 20 rolls of the outer wheel, and Z is the average of 20 rolls of the inner wheel. Find the following:
- (a) $E(X)$
 - (b) $E(Y)$
 - (c) $E(Z)$
 - (d) Which is bigger $P(X > 0.5)$ or $P(Z > 0.5)$? Explain.
5. Find the following places on campus and take a picture of yourself there and send it to me.
 - (a) The Counseling Center.
 - (b) The International Center.