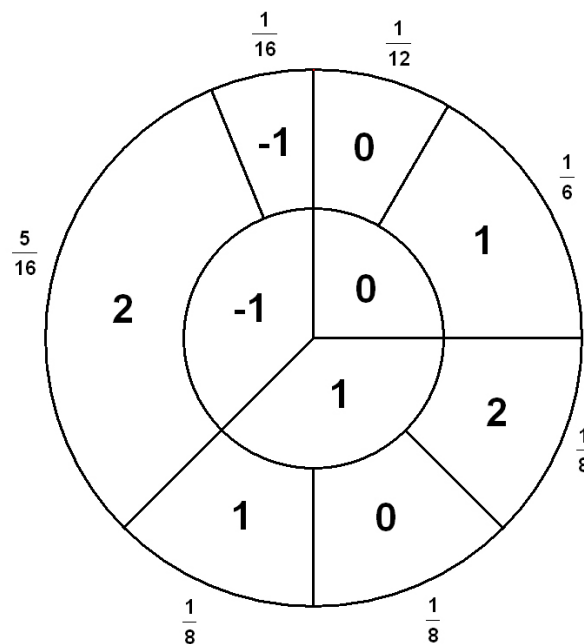


1. Suppose $d = \gcd(10846, 68498)$.
 - (a) Find d
 - (b) Find k, l such that $d = 10846 \cdot k + 68498 \cdot l$.
2. For each of the following find $a^{-1} \pmod{m}$ or explain why no such inverse exists. That is, find c such that $ac \equiv 1 \pmod{m}$.
 - (a) $a = 173575, m = 1043541$
 - (b) $a = 65236, m = 70441$.
3. Find $\phi(4207500)$
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.