Question 5:

- A) Find gcd(85327,59840).
- B) Are numbers in A relative prime? Justify your answer.
- C) Using Fermat's theorem find $4^{225} \bmod 13$.
- D) Using the Miller-Rabin test, say whether n=104717 is probably prime.
- E) Compute the set of integers that solve the equation $3^k \equiv 12 \ (mod \ 23)$ for k.

Include your calculations in your answer.