Exam 3
Algebraic Coding Theory
Math 525
Stephen Giang RedID: 823184070

Problem 5: Using *idempotents*, determine the number of proper cyclic codes of length 17. Show your work leading to the answer.

Notice the following: $n = 2^r * s = 17 = 2^0 * 17$. So we get $r = 0, s = 17$. Notice that $x^{17} + 1$ has 3 irreducible factors, such that $z = 3$. Now we get that number of proper cyclic codes of length 17 is $(2^0 + 1)^3 - 2 = -1$