Fall 2026 CIS 3362 Homework #5 Grading Criteria

1) 5 pts – Grading: 1 pt for each term, must have both base and exponent to get the point.

2) 5 pts – Grading: 2 pts to break down into five terms, 2 pts to plug into each definition of phi, 1 pt to simplify to an answer (can accept phi written in prime factorized form as well.)

3) 10 pts - Grading: Give full credit if they get to 276^{6626}, breakdown of points until then:

rewriting exponent as 5 x 8362 + 6626 – 5 pts
substituting into expression and using Fermat to simplify to 276^{6626} – 5 pts

4) 10 pts - Grading: 2 pts prime factorization, 3 pts phi, 3 pts exponent breakdown, 2 pts getting to the answer from there.

5) 10 pts - Grading: 1/2 pt for each row, 1 pt for x, 1 pt for y, 3 pts for final answer

6) 15 pts - Grading: Be fairly lenient, doesn't have to be this detailed.

5 pts if they state that α^k is a primitive root if and only if gcd(k, p – 1) = 1.
5 pts to show that if gcd(k, p – 1) = 1, then α^k is a primitive root.
5 pts to show that if gcd(k, p – 1) ≠ 1, then α^k is not a primitive root.

7) 10 pts - Grading: 1 pt choosing prime, 1 pt for listing generators with code, 1 pt for verifying phi of p – 1. Last point is for doing all 3 correctly.

8) 10 pts - Grading: 4 pts for initial list, 4 pts for searching powers of 2^8 until a match is found, 2 pts for stating the final answer.

9) 25 pts - Grading: 15 pts for code (must be attached to get credit, should be my code but modified to run the tests and count)

10 pts for analysis