Regular Midterm Rubrics

Problem 1
10/10 if correct answer of 12 is obtained, no explanation needed
-1 if answer is outside the interval [0,1,...,20] (e.g. "54" would receive 9/10)
-2 for a small arithmetic error (e.g. 54 \equiv 15 \mod{21} instead of 12)
-3 if they said powers of 3 mod 21 cycle every 7 instead of every 6 but method is otherwise correct

5/10 if they attempted to list out 3^1, 3^2, 3^3, ... mod 21
0/10 if no answer

Problem 2
+3 for each equivalence listed
-2 for each non-equivalence

Problem 3
a) 2 points: 1pt for each answer, -1 for extra answers
b) 3 points
c) 5 points
d) 3 points: -1 for missing 1 or 2 divisors, -2 for missing 2-4 divisors

Problem 4
-2 for each incorrect answer
score lower bounded by 0

Problem 5
(a) 3/3 points for a correct answer
    2/3 points in case of a typo or other trivial mistake
(b) 4/4 points for a correct answer
    3/4 points in case of a typo or other trivial mistake
(c) 4/4 points for a correct answer
    3/4 points for a correct, but unclear/not perfectly complete answer
(d) 5/5 points for a correct answer
    2/5 points for an answer that uses a less-than-perfectly-efficient grouping,
    but is otherwise good. This typically leads to 1-2-2-2-1 (8 total) steps.

Problem 6
(a) +1pts for 10 as answer or
    +5pts if correct
(b) +5pts
Problem 7
(grading only part a)
4 pts for induction hypothesis
4 pts for base case
8 pts for inductive step
Proofs by anything other than induction graded on a case-by-case basis

Conflict Midterm 1

Problem 1
[Contact dradesmaster for doubts]

Problem 2
(b) +2.5 for each part
All other parts: +5 points each

Problem 3
Same as problem 3 in regular midterm

Problem 4
-2pts for each wrong answer.

Problem 5
Same as problem 5 in regular midterm

Problem 6
(a) +1pts for 13 as answer or
+5pts if correct
(b) +5pts

Problem 7
Same as problem 7 in regular midterm
Problem 1

Problem 2
For solutions that did ==> and <= separately:
  For ==>:
    +2 for writing congruence as n | ax-b
    +3 for saying gcd(a,n) | ax-b
    +2 for saying gcd(a,n) | ax and therefore gcd(a,n) | b
  For <=:
    +4 for expressing b as a linear combination of a and n
    +4 for translating that linear combination into the congruence, i.e. saying:
    b = ax+yn ==> ax-b = -yn ==> ax = b (mod n)

For solutions that did the iff right away:
  +7 points for ax=b(mod n) iff exists y,z such that ay+nz=b
  +8 for concluding gcd(a,n) | b

Problem 3

Problem 4
a) 4 pts, no partial credit awarded
b) 4pts, no partial credit awarded
c) 12 pts
  8 pts for showing ordering of tasks along with incomplete explanation
  3 pts for finding some sort of bounds on the correct answer

Problem 5
each part 4 pts, no partial credit awarded

Problem 6
4 pts for induction hypothesis
3 pts for base case
8 pts for inductive step
Proofs by anything other than induction graded on a case-by-case basis