

## COT 3100H Spring 2021 Exam 2 Grading Criteria

- 1) 2 pts for Euclidean, 4 pts Extended Euclidean, 2 pts finding 1 solution, 2 pts for finding the number of solutions (give 1 pt for off by 1 error)
- 2) 3 pts prime fact 840000000, 3 pts prime fact 990000000, 2 pts LCM, 2 pts # divisors
- 3) 4 pts for writing  $10x + 5$ , 4 pts for squaring that, 2 pts for the conclusion
- 4) 2 pts BC, 2 pts IH, 2 pts IS, 1 pt sum split, 2 pts plug IH, 1 pt factor, 2 pts use fib to finish
- 5) BC  $n = 1 \rightarrow 2$  pts, BC  $n = 2 \rightarrow 2$  pts  
IH  $\rightarrow 2$  pts, IS  $\rightarrow 1$  pt

Drawing or explaining two ways to build off tiling of  $2 \times k \rightarrow 4$  pts

Drawing or explaining three ways to build off tiling  $2 \times (k-1) \rightarrow 3$  pts

Algebra for adding up the corresponding expressions  $\rightarrow 4$  pts

Note: the GC is loaded up with extra points for the easier portion of this because it's expected  
That most students won't get all the way to the correct algebra set up.

- 6) a) 3 pts - 1 pt numerator, 2 pts denominator,  
b) 6 pts - 2 pts for  $7C5$ , 2 pts for vowel perms, 2 pts for consonant perms, -1 if no mult  
c) 3 pts - 1 pt numerator, 2 pts denominator
- 7) 4 pts - update variables to get 28 on RHS and all non-neg  
4 pts for all combos with just the  $\geq$  restrictions  
4 pts to sub out the combos where  $c > 12$
- 8) 3 pts - add 1 to both sides  
3 pts - factor LHS as  $(x+1)(y+1)$   
3 pts - calculate total number of divisors  
2 pts - recognize they come in 28 ordered pairs  
1 pt - subtract out the one ordered pair  $(2^6 3^7, 1)$
- 9) 4 pts - give to all