

CSCI 271

Homework 5

Peter Danenberg <peterchd@usc.edu>

Altadena; December 5, 2006

1. (a) $2^{8-1} = 2^7 = 128$
(b) 7
(c) $1 + (-1)^8 = 2$
(d) $-(-2)^8 = -256$
2. (a) 10, 7, 4, 1, -2, -5, -8, -11, -14
(b) 1, 3, 6, 10, 15, 21, 28, 36, 45, 55
(c) 1, 5, 19, 65, 211, 685, 2059, 6305, 19171, 58025
(d) 1, 1, 1, 2, 2, 2, 2, 2, 3, 3
(e) 1, 1, 2, 3, 5, 8, 13, 21, 34, 55
(f) 1, 3, 7, 15, 31, 63, 127, 255, 511, 1023
(g) 1, 2, 2, 4, 8, 11, 33, 37, 148, 153
3. (a) Arithmetic progression with $a = 3$ and $d = 2$, where $a_n = a, a + d, a + 2d, \dots, a + nd, \dots$
(b) Prime numbers where a_n is the n^{th} prime number, and $n = 2, 3, 4, \dots$; assuming 1 is not a prime number.
(c) $\lfloor \frac{3^n}{2^n} \rfloor$ where $n = 3, 4, 5, \dots$
4. (a) 16
(b) 84
(c) $1 + \frac{1}{3} + \frac{1}{5} + \frac{1}{7} = \frac{176}{105}$
(d) 4