

Math 132 Exercise sheet

Discrete Mathematics and its application, seventh edition.

Chapter 1	1.1	2,3,9(a,b,c,d,e,f,g,h),11(a,c,e),12(a,c,d),17,28,29(a,c),31(c,e),35(e),40
	1.3	1(a),3(a),7,9(c),10(c),11,12,14,16,19
	1.4	1,5,7,11,13(a,b),15
	1.7	1,3,6,9,11,15,16,17,26,31
	1.8	1,3,6,9,14,19,29,34
Chapter 2	2.1	1,2,5,6,7,8,9,10,11,19,20,21,32,33
	2.2	4,14,25
	2.3	1,2,7(a,b),10,11,12(a,b,c),13(a,b,c),14,15,21,22,24,28,30,32
	2.5	1,2,3,10,11
Chapter 5	5.1	4,5,6,8,9,12,18,20,28,31,32,38,39,43
	5.2	<p>Q1: Let $\{a_n\}$ be a sequence of integers defined inductively as: $a_1 = 1, a_2 = 5, a_{n+1} = 2a_n + 3a_{n-1}$ for all $n \geq 2$. Prove that $3^n \leq a_{n+1} \leq 2(3^n)$ for all $n \geq 1$.</p> <p>Q2: Let $\{a_n\}$ be a sequence of integers defined inductively as: $a_1 = a_2 = a_3 = 1, a_{n+2} = a_{n+1} + a_n + a_{n-1}$ for all $n \geq 2$. Prove that a_n is an odd number for all $n \geq 1$.</p> <p>Q3: Let $\{a_n\}$ be a sequence of integers defined inductively as: $a_0 = 1, a_{n+1} = a_n + 3^n$ for all $n \geq 0$. Prove that $a_n = \frac{1}{2}(3^n + 1)$ for all $n \geq 0$.</p>
Chapter 9	9.1	1,3,6,10,11,18,26,30,32,34(a,d,e),36(d,e,h),41,50,51,52,53,56
	9.3	2,4,7,13,14,18,22,24,26,27,31,32
	9.5	1,3,9,16,21,22,23,26,28,36,40(a),42,46,48(a),55
	9.6	1,6,9,10,11,14,20,22