Question	Answer
1	a) 2, 4, 8, 16, 32 b) 1, 3, 9, 27, 81
2	a) 160, 80, 40, 20, 10, 5 To find the next term, half the previous term. b) 1, 4, 16, 64, 256, 1024 To find the next term, multiply the previous term by 4. c) 4, 7, 11, 18, 29, 47, 76, 123 To find the next term, add on the total of the previous 2 differences to the previous term. d) 4400, 5400, 7400, 10 400, 14 400, 19 400, 25 400 To find the next term, add 1000 onto the previous difference, and then add this total onto the previous term. e) $\dfrac{1}{2}, \dfrac{1}{4}, \dfrac{1}{8}, \dfrac{1}{16}, \dfrac{1}{32}, \dfrac{1}{64}, \dfrac{1}{128}$ To find the next term, double the denominator each time (or divide the previous term by 2, or multiply the previous term by $\dfrac{1}{2}$).
3	a) Sequence A: 2, 6, 18, 54, 162, 486 Sequence B: 2, 32, 62, 92, 122, 152 Sequence A exceeds 200 first. I know this as, after the first 4 terms, multiplying by 3 makes numbers larger more quickly than adding on 30 The numbers in Sequence A will be larger than the numbers in sequence B in positions 5, 6 or more. Other solutions are possible depending on how the students continued the sequences.
4	There are many solutions, here are 2 examples: 15, 45, 75, 105, 135 15, 45, 15, 45, 15
5	a) 23, 53, 113, 233, 473, 953 b) All of the terms end in a 3
6			1st	2nd	3rd	4th	5th | Row 1: 1, 1, 1, 1, 1 Row 2: 2, 4, 10, 28, 82 Row 3: 3, 7, 19, 55, 163 Row 4: 4, 10, 28, 82, 244 a) Eva is correct as the 2nd terms in each sequence create a sequence of their own: 1, 4, 7, 10 (constant difference = 3) b) The 3rd terms also create a sequence, this time with a difference of 9 c) The 4th terms also create a sequence, this time with a difference of 27 The 5th terms also create a sequence, this time with a difference of 81 The differences also create their own sequence: 3, 9, 27, 81. To find the next term in this sequence, multiply the previous term by 3 d) The 10th term in each sequence will form their own sequence and will increase by 3 x 3 x 3 x 3 x 3 x 3 x 3 x 3 x 3 = 19683 each time.
7	Lots of possible solutions, 2 examples are: 4, 0.4, 0.04, 0.004 4, 0.04, 0.0004, 0.000004