Activity 1. *Non-examinable.*

Let $x = 2$ and consider the nth term formula

$$u_n = \frac{(-1)^{n-1}}{(2n-1)!} x^{2n-1}.$$

Use the formula to complete the table to the right by plugging in the value of $x = 2$. Write each value to 5 significant figures.

n	u_n
1	
2	
3	
4	
5	
6	

After working out each u_n, work out the sum of $u_1, ..., u_6$ and write it down. Making sure you set your calculator to radians mode, work out the value of $\sin(2)$. What do you notice?

Activity 2.a For each sequence below,

1. write down the first four terms of the sequence, and

2. write down a and d.

u_n	First four terms	a	d
$u_n = 5n + 2$			
$u_n = 9 - 2n$			
$u_n = 7 + \frac{1}{2}n$			
$u_n = n - 10$			

2.b Find the nth term and the 10th term for each of the following arithmetic progressions,

Sequence	10th term	n^{th} term
$5, 7, 9, 11, ...$		
$5, 8, 11, 14, ...$		
$24, 21, 18, 15, ...$		
$-1, 3, 7, 11, ...$		
$x, 2x, 3x, 4x, ...$		
$a, a + d, a + 2d, a + 3d, ...$		