

## 2021 Worksheet 3

### Year 11 Applied Mathematics

Write the answers in your Exercise Book.

1. Evaluate each of these sums.

(a)  $\sum_{n=1}^3 2^n$  (2 marks)

(b)  $\sum_{n=4}^6 (3n - 2)$  (2 marks)

2. The first three terms of an **arithmetic** sequence are 3, 6, 9, . . .

(a) Find the common **difference**. (1 mark)

(b) Find the 10<sup>th</sup> term.  $\left[ T_n = a + (n-1)d \right]$  (1 mark)

(c) What is the **sum** of the first 20 terms?  $\left[ S_n = \frac{n}{2}[2a + (n-1)d] \right]$  (1 mark)

3. Consider the **geometric** sequence 1, 3, 9, 27, . . .

(a) Calculate the common **ratio**. (1 mark)

(b) Find the 9<sup>th</sup> term.  $\left[ T_n = ar^{n-1} \right]$  (1 mark)

(c) What is the **sum** of the first 10 terms?  $\left[ S_n = \frac{a(1-r^n)}{1-r} \right]$  (1 mark)

4. Find the **sum** of first 500 odd numbers.  $\left[ S_n = \frac{n}{2}[2a + (n-1)d] \right]$  (2 marks)