Name: _____ **Student Number:** _____

Department: _____ **Signature:** _____

Question 1. (4 points) Find a formula for the general term a_n of the sequence

$$\frac{2}{5}, \frac{-6}{25}, \frac{12}{125}, \frac{-20}{625}, \frac{30}{3125} \dots$$

assuming that the pattern of the first few terms continues.

Solution:

Question 2. Determine whether the given statements true or false. If true, just state "True", no need to prove. If false, state "False" and provide only one counter-example.

(a) (3 points) If $\sum a_n$ converges then $lim_{n\to\infty} a_n = 0$.

(b) (3 points) If $lim_{n\to\infty} a_n = 0$, then $\sum a_n$ converges.