MAT 137Y: Calculus with proofs
Test 1 - Part B - Comments and common errors

Q1

- We asked you to write down the definition in Q1a (even though this was free marks) to help you out in Q1b. Make sure your proof follows the structure dictated by the definition.

- If your definition includes "algebra with infinity" (for example the inequality "$|g(x) - \infty| < \varepsilon$"), then it is definitely wrong.

- "The limit does not exist" is not the same as "The limit is ∞".

- $\sqrt[3]{x - c} \neq \sqrt[3]{x} - \sqrt[3]{c}$

Q2

- You need to prove that **there exists** an interval I satisfying a certain property. You need to say what the interval I is.

- In the statement "$\forall \varepsilon > 0, \ \exists \delta > 0, \ldots$", δ depends on ε.
  δ by itself is not a number.
  Unless you first choose a specific value of ε (not arbitrary), you have not fixed δ.